The Builder.

VOL. XV.—No. 753.

THE germ of the modern railway system struck root and sprang up in our northern colliery districts upwards of 200 years since. Wooden rails were first laid down by a Mr. Beaumont, near Newcastle, in 1602. They were found so useful that they rapidly spread throughout the colliery districts; and in 1745 General Cope made use of a line near Prestonpans, in Scotland. An intelligent French traveller, named St. Fond, who visited Newcastle in 1791, speaks in terms of great admiration of the colliery waggon-ways of that place and time, and urges them on the attention of his countrymen. Improvements had been gradually made in them; and in 1776 a cast-iron railway, nailed to wooden sleepers, was laid down at the Duke of Norfolk's colliery, near Sheffield, by Mr. John Curr, whose son claims for him the invention of the cast-iron railway; but the first iron lines are believed to have been laid down at Whitehaven as early as 1738. Mr. Curr must have had few predecessors, however; for so new and unprecedented did his iron way appear to the labouring people connected with the colliery, that, believing it in their ignorance to be somehow injurious to their interests, they kicked up a riot, tore up the rails, and poor Mr. Curr had to fly into a wood, where he hid himself for three days to escape their fury. In 1800 Mr. Benjamin Outram, of Little Eton, in Derbyshire, used stone props in place of timber for supporting the ends and joinings of the rails, and such roads, according to Mr. Smiles, in his very interesting volume on "The Life of George Stephenson,"* became at length known as "tram-roads," from a contraction of the word "Outram." There seems to be some little difficulty in this statement, however, through which we cannot clearly see our way. The word tram is one connected with the carriage of goods in more ways than one: we have the trams or shafts of a cart in Scotland; coal-waggons themselves have long been known as trams in some parts: and thus the track-plates or rails of wood laid to receive these were called tram-ways. From the time of Outram, at all events, tramroads or railways rapidly extended, till at length they were generally adopted in the mining districts, and canal proprietors looked askance on them with a sinister interest, as "snakes in the grass," the Duke of Bridgewater remarking, when congratulated by Lord Kenyon on the successful issue of his inland "navigation" scheme, "Yes, we may do well enough if we can steer clear of these deuced tram-roads: there's mischief in them."

Improvement, thus far, was confined almost entirely to the road. Railway waggons still continued to be drawn by horses, the power of which, however, had been thus greatly economized. Railway improvement had almost reached its limits unless mechanical agency could be made applicable to the purpose of railway traction, and inventors and projectors were not long wanting. One suggested sails to drive the waggons along the line before the wind, much as it now does a train occasionally at no little speed without any sails at all. But the most favourite project was the application of steam power on the high pressure principle to railway traction, and not only to railway traction, but to traction on the common road without rails,—a still more favourite and early project. Savery proposed a method of propelling carriages along ordinary roads, and the subject was shortly after (in 1759) suggested to James Watt by Dr. Robinson, at Glasgow College, and Watt even included it in the specification of his patent of 1769. About the same time, one Moore, a London linendraper, took out a patent for moving wheel-carriages by steam, but it was not till 1763 that the first actual model of a steam-carriage is recorded, and that was constructed by a Frenchman named Cugnot, who afterwards built an engine on the same model for the French king,—but its very power led to its suppression, for when set in motion it projected itself onward with such force that it threw over a wall and was at once set down as too dangerous an apparatus for further use. This identical engine is now in the *Conservatoire des Arts et Métiers*. In 1772, an American, named Oliver Evans, invented a steam carriage for common roads, but with no practical result. In 1786, William Symington, the steam-boat inventor, had a working model of a steam carriage constructed, and he exhibited it at Edinburgh; but the roads there were far too bad at that time to enable him to do anything with it. The first English model of a steam carriage was made in 1784, by William Murdoch, the assistant of James Watt. It was on the high-pressure principle, and went on three wheels, by help of a spirit-lamp, and though only a foot high it ran away from its inventor one night, and almost terrified the pastor of the parish out of his senses, the rev. gentleman imagining it to be a fiery "imp of Satan." Trevethick, an eccentric genius, a pupil of Murdoch's, followed, with his steam carriage for common roads. Coleridge narrates how Trevethick's engine, too, while tearing away like mad along the road to Plymouth, breaking into gentlemen's gardens, and with other playful tricks by the way, so astonished and horrified a tollman that he threw open his toll-bar like magic, feeling assured that he had the Devil to deal with, and refused to touch any of the red-hot coins which he doubtless imagined his strange customer was about to offer him. The management of these common road steamers appears to have long been a difficult point; and it was not unusual for such a machine to land its passengers safely in the middle of a hedge by the wayside, half-way home to its own proper terminus. Trevethick's engine was exhibited in London; but he wanted perseverance, and, indeed, was very probably then on a wrong scent, since not even yet have such carriages for common roads proved successful; but Trevethick did endeavour to apply the steam carriage to the railway, and constructed a special engine, in 1804, for the purpose, which actually dragged ten tons of bar iron in waggons at the rate of five miles an hour; and, had he persevered, the locomotive might have had another history than it was destined to have; for he was on the verge of a great discovery. As it was, all this projector's endeavours turned out to be practically a failure, and he abandoned the locomotive for more promising schemes.

The final success of the locomotive was much retarded by an imaginary difficulty,—namely, the erroneous supposition that if any heavy weight were placed behind the engine, the "grip" or "bite" of the smooth wheels of the locomotive upon the equally smooth iron rail must necessarily be so slight that the wheels would slip round upon the rail itself, and consequently that the machine would not make any progress. The wheels of Trevethick's engine were provided with rough projections, in order to obviate this supposed difficulty, and probably this was one of the main reasons of his want of sufficient success to induce him to persevere.

The first locomotive line of railway was one between Leeds and the Middleton collieries. On this line, a length of three miles and a half, locomotives, invented by Mr. Blenkinsop, of Leeds, began to run in 1812, and continued to do so for many years. But still the erroneous idea prevailed; for Blenkinsop's engines had toothed wheels which ran in a racked or toothed rail. To obviate the same imaginary difficulty, other patents were taken out; one for a chain to extend along the line, with a twist of it round a barrel-wheel on the engine; another for a locomotive to go upon legs!

Mr. Blackett, of Wylam, made persevering efforts to employ the locomotive of Trevethick, and others, on the Wylam waggon-way, one of the oldest in the north of England. Now, it so happened that an old colliery engine-tender, of the name of Stephenson, lived in a small cottage by the side of this tramway, and that the man, his son, who was destined to mature the locomotive and the rail, and to become the true "railway king," was born in this same cottage at the fitting time, so as to have the work of his life set, as it were, before his very eyes, so soon as he had become capable of benefiting by the experiments of Mr. Blackett. Had this latter gentleman experimented only a few years sooner, or had he not begun till a few years later, in all probability the railway system would have still remained to be elaborated. It is a singular fact, too, as we may here observe, that at one period of the life of the chosen man on whom so much of the future progress of his country depended, he was on the eve of starting for the United States as an emigrant, so small did his prospect of good fortune in his native country appear. This was a crisis in the fate not only of an individual, but of a country, which stands out in curious coincidence with a similar crisis in the life of another individual with whom Stephenson may be happily compared, namely, in the fate of James Watt, as well as of his native country too, at that period; for Watt, as we not long since noted, was at one time on the eve of emigrating to Russia, whither the long-headed Russians were very anxious to attract such a prize.

The first engine placed on the Wylam waggonway was one of Trevethick's, in 1812. When the cumbrous machine was set in motion, it would not move an inch,—at least till it flew all to pieces. The next was built by Mr. Blackett himself, and it proved more successful than its predecessor. Still it was on the cog-wheeled principle, and the way laid down for it was racked. It crept along at a snail's pace, and was constantly breaking the cast-iron plates of the railway. At length it became so cranky that horses were regularly sent along with it to pull it out of the scrapes into which it was constantly getting, and at last it was voted "a perfect plague," and was dismissed the service. Before he placed another locomotive on his tramway, Mr. Blackett, by means of a frame and windlass, proved that the adhesion of wheels on smooth rails was quite sufficient to enable him to work a locomotive without slipping. Thus was the fallacy which had heretofore prevailed on this subject completely dissipated, and rack rails, toothed wheels, endless chains, and legs, were all alike proved to be unnecessary for the efficient traction of loaded waggons upon a moderately level road.

George Stephenson now comes on the railway stage with his improvements. He had frequently witnessed Mr. Blackett's experiments whilst tending his colliery engine at Killingworth, near Wylam, and he made himself intimately acquainted, not only with the merits and the defects of the locomotives there at work, but also of those at Leeds, which were of a much superior description. Stephenson had

* "The Life of George Stephenson, Railway Engineer." By Samuel Smiles; with Portrait. John Murray, Albemarle-street. 1857.

already made himself respected by his employer, Lord Ravensworth, and, though a humble engine-man, he had frequent conversations with his lordship, and at length persuaded him to supply the means of forming a locomotive, which, with great difficulty, from the want of fitting mechanics at that time, he at length effected, following to some extent the plan of Blenkinsop. It proved to be the most successful engine yet constructed, and was capable of drawing eight loaded carriages of thirty tons weight at the rate of about four miles an hour. "Blutcher" was, nevertheless, a cumbrous and clumsy machine, and the result was anything but decisive, when Stephenson at this juncture applied the steam-blast, and thus at once doubled the power of the engine. Without the steam-blast, by which the intensity of combustion was kept up to the highest point, and the evolution of steam thus rapidly effected, high rates of speed by means of the combustion of coke could not have been attained, and locomotives might still have been dragging themselves unwieldily along at the rate of not more than five or six miles an hour. It was by means of the steam-blast, in conjunction with the multitubular boiler, that he afterwards secured the triumph of the locomotive on the opening of the Manchester and Liverpool railway. Numerous other defects were remedied in subsequent constructions, and, in 1815, Mr. Stephenson, by dint of patient and persevering labour,—by careful observation of the works of others, and never neglecting to avail himself of their suggestions,—had succeeded in manufacturing an engine which included the following important improvements on all previous attempts, namely,—simple and direct communication between the cylinder and the wheels rolling upon the rails; joint adhesion of all the wheels attained by the use of horizontal connecting rods; and finally a beautiful method of exciting the combustion of the fuel by employing the waste steam which had formerly been allowed uselessly to escape into the air. "Although many improvements in detail," says Mr. Smiles, "were afterwards introduced in the locomotive by Mr. Stephenson himself, as well as by his equally distinguished son, it is perhaps not too much to say that this engine, as a mechanical contrivance, contained the germ of all that has since been effected. It may in fact be regarded as the type of the present locomotive engine."

Our immediate purpose having been simply to show, in a brief sketch, based on Mr. Smiles's very interesting volume, how the locomotive and the rail came together, and from what beginnings the more matured system was developed, we shall not lengthen our sketch by any further recital of what followed; all the more prominent subsequent procedure being more familiar to our readers and the public in general than what preceded the first manifestation of the public astonishment when incredulity was no longer possible, and men of science and mark became ashamed of their false predictions.

To all who desire to know what followed, as well as, far more fully, what preceded the grand opening of the Liverpool and Manchester, we can only say,—read Mr. Smiles's excellent book, and they will not only be satisfied in that respect, but amused and instructed in many others.

THE DESIGNS FOR THE GOVERNMENT OFFICES.*

IN our last article, we referred to the principal Gothic designs—to the authors of which, premiums have been awarded—and adverted to some interesting questions which were connected with them. We also mentioned what was the general scope of the design No. 116. The author of this work, as it will have been seen, like all those who have received premiums—unless Mr. Hastings, the author of one of the block plans, should prove an exception—viewed the three subjects announced for competition, as not admitting of the separation pre-supposed, and which, by the awards, has been assumed as though really kept up. Mr. Scott, indeed, considers that the *general street plan* and the block plan of the Offices, have not necessarily any connection with one another; but he says the block plan and the detailed designs for the Foreign-office and the War-office, manifestly ought to be the creation of one mind. The street plan, he thinks, might readily be prepared without reference to any particular plan of the Offices. This is going on the assumption that the site of Westminster-bridge is, as he contemplates it, retained; but the question of the bridges really opened the whole extensive problem. The level of the embankment, also, needed to be considered. Mr. Scott, however, prepared all the drawings required, and has been awarded a premium (of 300*l.*) ostensibly only for the Foreign-office. His two Offices are in separate buildings, or joined only by archways; but one of the two would hardly harmonise with the work of another architect better than would the design by Mr. Dwyer (126), for the War-office, which is merely one portion of a general building. Leaving the question of the awards for any separate notice that may be called for—recollecting, however, that we have already spoken at some length of the mistakes which have led to the difficulties of the adjudication—we proceed with our notes.

In the general plan in design No. 116, the three bridges are provided; and as to Westminster-bridge, after giving the arguments for the present site, the author "cannot conceive of a bridge better placed." Besides the Charing-cross-bridge, he retains Hungerford-bridge as a foot-bridge, properly holding that if the two bridges would be near together, that would be much better than placing the new bridge wrongly. The principal new line of street which he provides, extends from Buckingham Palace to the bend of Victoria-street, and then takes in Great College-street, in preference to following the direct line to the Victoria Tower, which, as in some of the plans, would intersect the Abbey precincts. His line he thinks, in fact just as good as the other. He would then open out and restore the Chapter House, and having removed the houses in Abingdon-street, would form a wide double cloister—to receive the incongruous monuments of Westminster Abbey, and new monuments of statesmen—extending to the corner of College-street, and returning round the College-gardens to the Dormitory of the Westminster-school. He advocates in terms which should receive attentive consideration, the retention of the site of St. Margaret's Church. He anticipates the removal of the Law Courts;—but, at least, next Bridge-street, thinks Sir Charles Barry's work should not be completed quite as proposed. In the general arrangement of the Offices he would leave the Board of Trade, and would add to it at the back, but has laid out the whole remaining ground, providing for one grand arrangement of Gothic buildings. With us, he remarks on the obvious incompleteness of the site without the ground now occupied by Richmond-terrace. On the river side he has a grand public terrace entered under lofty towers, and having a covered cloister from end to end. To Parliament-street he would give a width of 150 feet, placing along the centre a paved space, somewhat like that in the *Unter den Linden* at Berlin, on which might be raised statues; and at the southern extremity, at a centre from which the lines of different roads would diverge, he would erect a monument to eminent statesmen. The principal design A, has the buildings of the Offices together surrounding an oblong court. The design B exhibits a modified arrangement, with the War-office plan turned round, so as to have a court and screen of arches next Parliament-street. The design A is that which the author prefers; but the screen is one of the best features in the designs. The general arrangement in each of the plans—whether for the War-office or the Foreign-office, is similar. An entrance in the centre leads to a staircase-hall, square at the ground-level. In the glazed covering, a clever attempt is made to adapt the dome to Gothic architecture. The corridors which lead out, are in some cases lighted from internal courts, and in a few others by borrowed lights. These lights, in the form of ornamental window-tracery, fill in the arches along the upper part of the corridors—which are groined. In some cases, mezzanine stories are provided, both stories approached from the same corridor,—the upper story, by means of a small gallery. In the design B, besides the screen of arches, there is an arcade on the remaining sides of the quadrangle. In the decorative design, all the external and internal features are studied with care, and display both novelty and beauty of ornament: but the general effect in the War-office, is, we think, impaired by the form and proportion of the truncated roof to the centre tower; and it is open to consideration whether the wings in design B, which are symmetrical with each other, should not also be symmetrical as to the parts of themselves; as at present they have the appearance which is suited to small buildings of a different class. The arches generally have the pointed form, as most suitable to a building of the first class: the heads, however, are filled in generally, and are enriched or pierced. Crocketed gables; parapets corbelled out, and made to extend across the gables; square and octagonal angle-turrets and pinnacles; wide window openings, with shafts, and balconies; statues in the front, under canopies, and borne by shafts; broad piers, with ornamental impost mouldings; occasional square-headed windows, with a central shaft, and ornamented chamfering to the jambs; surface enrichment in diaper, and scroll-work; colonred voussoirs to arches; pateras, and foliated spandrils; and the coloured materials, in general use, as marble in shafts; with a considerable amount of carved work, are amongst the details deserving of examination. Buttresses are systematically avoided as parts of the design.

Within the courts there are entrances with semicircular arches; and some of the porches have marked Italian Gothic features. The principal doorway to the Foreign-office is almost the only part of the design which has any ecclesiastical character. Staircases are placed in octagonal spire-capped portions of the building, with the stepped or raking lines showing as external decoration. One detail drawing, with the internal finishings, would claim careful inspection, on account of the successful application of novel and rich decorations on good structural principles. As to the use of coloured materials, with the exception of the granite and serpentine shafts, or similar small features, the author of the design, with proper judgment, contemplates only slight shades of difference. The best brown Portland-stone, the Anston-stone, or what he would much prefer, the Mansfield Woodhouse, first used at the Houses of Parliament, where it has stood the best; and the Mansfield red stone—an excellent material, as shown by the manner in which it has endured in the pavement in Trafalgar-square—are what he has named.

Of the drawings, under the number 129—hung opposite to those last noticed, and already referred to—some further particulars may be given in this place. They bear the motto, "A vaillants cœurs rien impossible," and include a general plan and block-plan, and a design for the War-office and the Foreign-office in one building. There are twenty-two drawings, elaborately shaded as mentioned, and amongst them are several perspective views and details at large. To the author, Mr. Street, has been awarded one of the premiums of 100*l.*; this, as it is set forth, is given for the Foreign Department. It may be noticed that the Gothic designs generally have been put under the same division; the only exception being the design, No. 140, by Messrs. Prichard and Seddon, one equally comprehensive—as to the two offices—and which stands in the list of designs for the War-office. In his general plan, the author of No. 129 has preserved the site of Westminster-bridge, adding a bridge at Charing Cross, with an approach obtained by the removal of Northumberland House; and he also shows that he would remove Dover House, to get a new entrance to the park, and houses opposite in Whitehall to form a garden. But the design having been prepared in the manner of protest against the choice of any other style than the Gothic, its author has given his chief attention to the two principal offices. Like others, the authors of Gothic designs which have been chosen, and like some who are not in the list, he has, however, felt the necessity of considerable modification in the style, to render it consistent with modern wants. Indeed, the identity of the opinions which are put forth in reports is sometimes very remarkable.

The distinctive character of No. 129 arises from its apparent greater admission of irregularity as consistent with, if not serving the general effect. The War-office, in the front next Parliament-street, has a recessed centre and a fore-court enclosed by a wall, and has the entrance at one side. The west front of the Foreign-office, where is the residence, has a similar plan with an inclosing railing, and the addition of a loggia of arches to the entrance. A groined passage traverses the two Offices from east to west, whence access would be had to all the staircases and corridors throughout the buildings. Gateways, and a carriage-way from north to south across the quadrangle of the War-office, are also provided. The rooms are arranged in all cases, on both sides of corridors, which run the full length of the wings. The rooms for the Secretaries of State are placed, in each Office, as near the centre as possible: that for the Minister of War has access by means of an open corridor or cloister (as well as by the other corridors) to all parts of the buildings. The entrance to the Foreign Minister's residence for the official receptions, is in the centre of the park front, where there is a large hall communicating with both the private

* See p. 370, *ante*.

portion of the residence and with the state dining-room. Two staircases lead to the *suite* of reception-rooms, which run from north to south the full length, and return along the other fronts—where they are less in height than on the west, to allow of bed-rooms over them. A courtyard for stables is obtained, between the residence and the eastern wing of the Office—entered from Charles-street. A central tower, square on plan, with pyramidal and lantern capping, is shown attached to the War-office. It would be used as a ventilating and smoke-conducting shaft.

The ground-story is raised eight feet, so that the basement is lighted without areas; and generally, height has been sought for, as conducive to effect,—the author supposing that the limitation to three stories must have been felt by most architects as a serious impediment in the way of a really grand pile of buildings. He avails himself, however, of what he says, a Gothic building, as well as our climate, requires—namely, a steep roof. In this he has generally avoided gable-ends—following the continental rather than the English principle,—on the ground that, with many gables, it is difficult to secure the "repose" required in such a building as that projected,—whilst in old English works, the scale being generally less, he says "it is more possible to think of the picturesque than of the grand in effect, which it need hardly be said would be wrong in this case." The "picturesque," however, we have said, it was not our opinion that he had escaped. Much of the effect which we referred to, results verily from the extent of the variation in the features, such as windows; and which variation the author believes his design shows, with not the less, an appearance of general uniformity. The windows are not placed over one another, and are, he says, "varied according to the use and size of the several rooms;" whilst, "the entrance is placed where most convenient; and, in short, there is, with a general regularity of effect and outline, a high degree of natural and justifiable irregularity in almost all the parts." "This," he observes, "it should be remembered, is the invariable practice of the best Gothic architects;" whilst the "neglect of it," he considers "is the one great blot on the New Houses of Parliament, as on all revivals of Classic and Renaissance architecture." Many of the windows have a Venetian character, and the majority are of continental origin. Especially, like the author of No. 116, he adopts the shaft—often of coloured marbles—in place of the mullion; he owns that mistakes have been made in modern Gothic houses, as in the provision of openings too small for the admission of light, and he provides wide openings with sashes and plate glass. The contrivances to reconcile the character of decoration with modern requirements display considerable skill. The uses of the apartments being kept in view in the design of the windows, a number of them of similar character in several cases range together; and the upper story becomes an arcade. Some of the turrets and pinnacles corbelled out at angles, are the least pleasing portions of the design. One of the lateral fronts has a recessed centre with a screen of arches somewhat similar to that mentioned in the notice of No. 116.

THE AWARD OF THE JUDGES ON THE DESIGNS FOR GOVERNMENT OFFICES.

THE Report of the Judges appointed to make the selection is not yet in the hands of members of the Houses of Parliament. It will be accompanied with two large plans, and these have caused the delay. The judges are understood to say in their report:—

"In examining the designs, which are 218 in number, and which embraced nearly 2,000 drawings, our first object was to ascertain how far those competitors whom we deemed most worthy of notice had or had not sufficiently complied with the instructions issued by her Majesty's Government. In their detailed examination we obtained the assistance of two gentlemen of great experience and of high professional character, namely, Mr. Angell and Mr. Pownall; and we are anxious to bear our testimony to the valuable services of these gentlemen. Of the block plans, we desire to remark that we would not be supposed to approve of all the extensive alterations and demolitions recommended in the selected designs, which we, nevertheless, believe to contain many valuable suggestions.

"With regard to the design for the Foreign and War Departments, a difficulty presented itself, in consequence of several of the competitors having sent in one building more or less unfitted for sub-division for both the public offices, for which distinct prizes have to be awarded, whilst others have either confined their efforts to one of the buildings, or have given separate designs for each. It will be evident that those united designs compete under considerable disadvantage with the single designs, and that unless a united design should be superior in both departments to all its single competitors, it could not receive a prize because one portion of it could hardly be executed without the other. We have been obliged to meet this difficulty by treating the lower prizes as marks of distinction for merit rather than as indicating special selection of the designs as fitted for separate construction. We desire to express our great admiration of the unprecedented collection of designs submitted to us, of the artistic genius, manual skill, and patient labour which have combined to produce it, as well as of the eminent ability which so many of the competitors have displayed in dealing with internal arrangement, and in adapting the required accommodation to a definite area of ground, and to record our opinion that the collection reflects the highest credit upon the architects, foreign and English, who have so liberally responded to your appeal (the Chief Commissioner of Works). We cannot conclude this report without expressing our regret at the loss of the assistance of our colleague and chairman, the Duke of Buccleuch, who, being unexpectedly called away from London by business of pressing importance, was compelled to resign his seat amongst us at our second meeting, and almost at the close, when, as we believed, only one more day would be required to complete our task, a domestic calamity of the most grievous kind befel our colleague, Lord Eversley, and deprived us of his most valuable co-operation in our final awards." The report is signed by Lord Stanhope, Mr. Stirling, Mr. Roberts, Mr. Brunel, and Mr. William Burn.

SIR,—The following information received from a friend at head-quarters is at your service:—

The judges went carefully through *every* design, and gave the matter great care and consideration; Messrs. Burn and Brunel being at the Hall as early as six o'clock in the morning. They measured every plan, and after several prunings reduced the number to twenty, as deserving of more consideration. All the other designs were then packed up and put on one side, and the twenty selected re-hung, and ultimately, the seventeen premiums given, as already published, leaving the following:—No. 64, by Mr. John Philpot Jones; No. 112, by Mr. Robert Kerr; No. 144, by Mr. Cockerell.

All the authors of the above twenty sent in for more than one design, but the judges decided to give no competitor more than one premium, so their second design was put by.

There were only six block plans selected; the three that have got prizes, and one by Mr. G. G. Scott, one by Mr. J. P. Jones, and a third whose author's name I have forgotten. I enclose my card, and am,

A LOOKER ON.

THE GROTTO OF ST. BENEDICT AT SUBIACO, AND ITS MONASTIC INSTITUTIONS.

IN our report of the proceedings at the Ordinary General Meeting of the Institute of Architects, on the 18th of May, it was stated that Mr. Digby Wyatt made some observations on the Grotto of St. Benedict, at St. Subiaco, and its Monastic Institutions, to which we promised to refer on another occasion. He commenced by reminding his hearers that St. Benedict was as completely the patriarch of the Western Monks, and the founder of all the properly organized monastic systems of Europe, as St. Paul, the proto-hermit, St. Anthony, St. Basil, and St. Jerome, had been the precursors of those of Africa and Asia previous to his advent. During the first three centuries of the Christian era, numbers of the persecuted occupants of the Catacombs fled to the rocky fastnesses skirting the Campagna of Rome, and there led lives of seclusion analagous to those of the Fathers of the Desert, and many such still dwelt in similar shelter, and in more or less complete isolation, in the days of St. Benedict, nearly two hundred years after the adoption of Christianity by Constantine. It remained, however, for that worthy saint to introduce the bond of union and of common charity among such recluses, thereby instituting the system of mutual protection and good offices which lent that power to the regular clergy which enabled them to make head against the turbulence of a wild and rude age, and ultimately to attain an unprecedented influence over men and manners, history, literature, and faith, throughout the whole of the Middle Ages.

The monasteries of Subiaco, Monte Cassino, San Calisto at Rome, and numerous others in Italy, and other countries of Western Europe attest, at the present day, the extensive influence exercised by the Benedictine order,—the proverbial protectors of such learning and science as were compatible with the rude energies of Mediæval life. From the great fountain head numerous branches germinated in later times. St. Bruno (1030-1101) became the founder of the Carthusians, and St. Bernard (born 1091) of the Cistercians, which latter body possessed Fountains Abbey (so worthily preserved through the zeal of the noble President of the Institute), and many of the fairest domains in this our native country.

The Grandmontines, Clugniacs, and Premonstratensians, lived also under the rule of St. Benedict, though under a somewhat different discipline. In this country the possessions of the Benedictines were immense. With the exception of Carlisle they owned all the cathedral priories, and most of the richest abbacies. Even at the period of the dissolution of monasteries, Bishop Tanner, in his "Notitiæ," enumerates no less than 186 important religious establishments still in their hands, despite the active competition which existed between them and the Dominican and Franciscan Orders. Until the end of the twelfth and the beginning of the thirteenth centuries, when the founders of these two last-named orders flourished, the Benedictines were the presiding rulers over architectural and all other art, and it can surely, therefore, be no uninteresting duty for us to trace out the vestiges they have left of their skill and taste, profusely scattered around the spot hallowed beyond measure in their hearts by the unquestionable presence and love of their admirable founder.

With the age of St. Francis, great changes of every kind in faith, manners, and art, were introduced, and one of the most interesting studies of the comparative anatomy of architecture which can be made is between the great monastic establishments founded by him at Assisi, and that established at Subiaco by St. Benedict. St. Francis was born in 1182, at the former place, and in its church Giotto has represented the most remarkable events in his life, in a well-known series of fresco paintings. An analogous series of frescoes, representing the leading incidents of St. Benedict's life, and to which we shall hereafter refer, is to be met with at Subiaco.

This romantic spot, venerated by the Catholic as a shrine, and by the artist as one of the loveliest spots upon the face of the earth, is grandly situated in a gorge of the mountains, about forty miles eastward of Rome. Its name is a corruption of Sublacum, derived from its position below the artificial lakes formed by Nero in the grounds attached to his villa, by damming up the course of the Anio, a stream which ultimately falls into the Tiber above Rome. It was in this splendid villa that the scene so tersely and yet vividly depicted by Tacitus took place, when the lightning from Heaven dashed the golden cup from the tyrant's hand as he was carousing, and yet spared his execrable life. These artificial lakes existed for centuries, till on the 20th of February, 1305, a sudden flood burst the barriers, the traces of which catastrophe may still be seen on the sides of the mountain gorge. Fragments of the remains from the emperor's villa may be detected appropriated to strange and modern uses in the adjoining conventual and secular buildings.

The whole of the scenery about Subiaco is most wild and picturesque. The road to it from Tivoli, after following awhile the ancient Via Valeria, is carried along the very verge of the gorge: the town perched on a height, the monastery embowered in foliage, and the magnificent ravine, by following the windings of which, on a strangely artificial path, it can alone be reached from the town, are subjects familiar to, and endeared to the memories of most tourists and artists. At the distance of about two miles from the town of Subiaco the gorge contracts, and the mountains on either side rise almost vertically to a height of little less than 2,000 feet from the valley, along which the rushing Anio cleaves its noisy way. On the left hand side, at about 1,000 feet from the stream, there are several small caves, and a little table of land, dark with ilexes of immemorial growth, accessible only, before the formation of an artificial footway, at imminent danger. Far above these grottoes the cliff rises precipitously to another table of land at its summit. It was to one of these caves that St. Benedict fled, at the early age of fourteen or fifteen years, from the world and such allurements as the semi-barbaric age in which he lived could offer.

Born of noble parents, respectively of the Anician and Claudian families, at Norcia, in the Dukedom of Spoleto, in Italy, A.D. 480, he was taken to Rome for education, where he became disgusted at the vicious courses of the inhabitants, in whom the graces of Christianity had at that period but imperfectly expelled the sensual traditions of Paganism, and fled, first with his nurse, and ultimately alone, to the deserted spot above described. Here it was that he was supplied with food by the generosity of Romanus, a monk of a neighbouring monastery, whose only communication with the youthful recluse was effected by letting down a string along the face of the cliff from the upper table land to the grotto in which he had taken up his abode. The life of St. Benedict, by Pope Gregory the Great, the especial patron of the order, who was removed from its founder by but one generation, does not fail to depict the temptations

which the saint encountered from the Evil One in various shapes in this retreat, and the manful way in which they were overcome. Subsequently he was induced to become the abbot of the curious rock-cut monastery of St. Cosimato in the vicinity; but the strictness of his rule occasioned so many plots against his life, that he returned to his former solitude.

His fame having now extended far and wide, numbers flocked to him, and through the liberality of the faithful, he was enabled to erect twelve monasteries on the rocks surrounding his retreat. Having, with the assistance of his affectionate disciples, St. Maur and St. Placid, established and confirmed, in regular order, these religious establishments, the saint went on to Monte Cassino. There he met with a set of inhabitants still profoundly embued with Paganism, and worshipping Apollo in a sacred grove. These misguided people he converted, and having induced them to cut down their sacred grove, and to desecrate their temple, in the year 529 he laid the foundations of that monastery which, vastly increased in after ages, grew to be the great head quarters of the order, and became for many centuries the depository of all that was most advanced in the art and learning of the Dark and Middle Ages. Here it was that the saint expired in the sixty-third year of his age.

Of all the twelve monasteries established by St. Benedict at Subiaco, little trace is to be met with in the present day. Lombards, Saracens, turbulent feudal chieftains, and dishonest administrators gradually swept away almost all that there was of the primitive institution, and scarcely anything but a few fragments in the neighbourhood, and the foundations of portions of the monastery of St. Scholastica attest the importance of the original institutions.

This last-mentioned noble structure consists of an entrance courtyard, surrounded on three sides by a wall, and on the fourth by buildings; to which succeeds a cloister of modern date, arcaded on two sides. Beyond stands the oldest portion of the monastery ascribed to the year 1052, irregularly disposed to suit the site and formation of the ground, and much modified by insertions of later date, among the most important of which is a striking arch of "flamboyant" character. The refectory is situated between this cloister and one built by Abbot Lando in the year 1235. The ambulatory of this last is formed by bays of stilted semi-circular arches, supported on slender marble shafts, with capitals and bases, in the Byzantine style, the whole bearing a strong resemblance to those to be seen in the cloisters of S. Saba and of Sta. Sabina at Rome. Large pointed arches of construction are seen in the refectory and in the church. The latter was built by Benedict VII. in 981, with a campanile of the usual Early Christian character, but covered with a low pyramidal roof. At a much later period, in 1769, a new interior, in modern Italian taste, with a waggon-headed ceiling, was built within the outer walls, they being left almost undisturbed, so that the whole of the interior now visible is modern, with the exception of the apsidal choir end, which was not much altered. The exterior has been recently decorated in doubtful taste. The finely-painted chapel of St. Michael and All Angels, in the crypt, is said to contain the body of St. Bede, but Bishop Ullathorne (R.C.) has recently proved, at once eloquently and learnedly, that this is not the Venerable Bede, our countryman, originally interred at Jarrow, and stolen from thence to enrich the sanctuary of St. Cuthbert at Durham, but another personage—St. Bede the younger, a saint of Italian origin, and rather later date.

The mosaic work in the arcade of Bishop Lando's Cloister is attributed to the Cosmati family, who were much employed as architects, sculptors, and mosaicists at Rome, Orvieto, and elsewhere in the Roman territory. Seroux d'Agincourt, who gives careful plates of this cloister, and of the other buildings at Subiaco ("Architettura," tavole xxix and xxxv.), supplies a copy of the original inscription testifying to the above fact in the following words (the abbreviations being supplied);—"Cosmas et filii Lucas Jacobus alti Romani cives in marmoris arte periti hoc opus expleverunt Abbatis tempore Landi." [The architectural and round arch peculiarities of this cloister, which are of remarkable interest as compared with later works of the Cosmati in the Pointed style at Rome and elsewhere, were very fully illustrated by Mr. Wyatt's drawings.] Santa Scholastica, whose name is attached to this monastery, was the beloved sister of St. Benedict, and a virgin dedicated to a holy life. She was the foundress of the important order of Benedictine Nuns, the annual revenues from whose temporalities in this country at the date of the dissolution of convents, &c. amounted to very nearly 8,000*l.* a great sum at that period.

About a mile and a quarter distant from Sta. Scholastica, by a lovely path winding along the precipice, and supported for the most part on buttresses clinging to its face, are the monastic buildings connected with the "Sagro Speco," the cavern in which St. Benedict is stated to have taken refuge, and the picturesque situation of which has been already fully described. The approach to them from the entrance gate is under a grove of Ilex trees, the impenetrable shade of which upon a sultry day never fails to be most refreshing to the pilgrim after his toilsome walk along the somewhat rugged mountain-path. The peculiar nature and position of the caverns have given rise to the form and arrangement of the monastic buildings and chapels grouped about them. A huge portion of the rock, that over which St. Romanus is related to have lowered the cord with food for St. Benedict, overhangs the monastery in a manner so obviously and imminently dangerous as to afford occasion to the monks to adduce its position as a proof of direct divine interposition in their favour. The scene on entering the upper church is most striking. The rays of light from its single west window fall everywhere upon surfaces glowing with colour. With the exception of the time-stained marble pulpit and its curious coffered ornaments, evidently imitated from the fragments of the lacunariæ of the Villa of Nero, all is fretted with an endless variety of hues. Even the fine old pavement of Opus Alexandrinum ministers to the brilliancy of the general effect. The largeness and simplicity of the early pointed forms, the size and severity of the painted figures and groups, and the grand unity of aspect in shade produced by the admission of a flood of light at one point only, effectually prevent the slightest approximation to frittered or meretricious grace. Behind the high altar of the Upper Church, a descent of a few steps, on either side, leads to the chapel of Sta. Scholastica, from which a long descent of steps passing under the high altar of the Upper Church communicates with the Lower Church or crypt. On the lowest level of this church, and between the side work and the living rock is the grotto of St. Benedict. Following the sinuosities of the precipice outwards, steps still descending lead to the chapel of St. Lawrence, and over it is the chapel of St. Gregory, to which access is given from the lower church by a species of mezzanine gallery. At the lowest level of all is the so called Rose Garden (one filled with briars till the advent of St. Francis), with various other grottoes cut in the rock.

The Gothic of the churches in the Sagro Speco may be described as good Italian Gothic—decidedly distinct from our western styles—and more similar to that found in Sicilian buildings of like date, than to any other examples of early pointed work to be found in the north of Italy. It is, however, to the vast amount of coloured decoration on the walls, especially of the upper church, that the peculiar interest and charm attached to the building are to be ascribed. [Mr. Wyatt had seen before he left England the effect which a partial use of colour would produce, in the church which the late Welby Pugin had constructed at Nottingham in this kingdom, and in other buildings by that accomplished architect, executed prior to the year 1846; but it was not till he visited Subiaco, he said, that he realized the satisfactory result of an ecclesiastical interior entirely covered with coloured fresco paintings and ornamentation. It was more especially on this account that he was induced to make elaborate studies of the interior in most of its parts—accurate representations of which, done upon the spot, he exhibited to the meeting.] With their richness of tint, strange diversity of plane and level, singular contrasts of brilliancy and sobriety of lighting, every step produced some new picture—some fresh and happy combination; and he felt that there was in them sufficient work for months of an artist's time, rather than for the happy week or ten days only he had been enabled to devote to them.

The chapel of St. Gregory contains a fresco portrait of St. Francis, dated 1223, the time apparently of his visit to the convent—which from its representing him with the cowl of his order, instead of the aureole of canonization, might be assumed to be a faithful representation done from the living man.* In the lower chapel, the establishment of the community of the Sagro Speco, by Pope Innocent III. and the donation of the Bull to the first prior, John Tagliacozzo, in 1213, are represented in large frescoes, in which the probability of portraiture is again apparent. Such a faithful mode of handing down historical events pictorially to posterity might, Mr. Wyatt observed, be worthy of attention in the present day, as decidedly more instructive and rational than portraying imaginary Cœur de Lions and Joans of Arc in our houses of legislature. Another fresco of great beauty and a later date (1489) in the chapel of the Beato Lorenzo Loricato, signed by Stamatico, is a highly-interesting example of the state of the art of that time.

The fresco decorations of Subiaco possess much greater interest in the history of painting than has been generally ascribed to them. They are unquestionably of at least four distinct and highly characteristic periods.

The first or earliest specimen in the rude manner of the artists of the catacombs, which is roughly painted against the side of the lower grotto, less difficult of access than the upper one, and in which it is said St. Benedict first received those who came to receive his admonitions and attend his ministrations, may very possibly date from the age of that saint, *i.e.* from the commencement of the sixth century.

The second set of examples is in the stiff and severe Greek style which preceded the manner of the great Florentine innovator, Cimabue. To this belong many of the paintings in the lower chapel, first built to protect the Sacred Grotto; and among them may be noticed especially the Representations of the Establishments of the Community, by Pope Innocent III. (1198-1216) the Consecration of the Church by Pope Gregory IX. and the Virgin and Child supported by Angels. This last is to be especially noted as to be identified by the inscription "Magister Conxolus pinxit hoc opus." This Magister Conxolus was a Greek, and authorities (Lanzi and Bishop Ullathorne) are agreed in considering that he worked at Subiaco as early as the year 1209, thirty-one years before the birth even of Cimabue. It may not be unimportant, in connection with this date, to observe, that many Greek monks, who had been driven away from their monastery at Grotto Ferrata in 1165, by the wars which at that time took place between the Albanians and Tusculans, were residing at the Sagro Speco, to which they had fled for refuge. Through them it was that the establishment at Subiaco became possessed of that most interesting relic, evidently of great antiquity, the black camel's hair cowl, said to have been the capouche or hood of St. Basil, and to have been brought to Italy by his friend St. Gregory Nazianzen, by whom it was presented in the year 378, to the then abbot of that very monastery of Grotta Ferrata. Under the auspices of such a body as these Greek monks, it seems anything but unreasonable to suppose that the skill of Conxolus must have been fully developed. In 1066, we know from Leo Ostiensis, that Desiderius, abbot of Monte Cassino, desiring to rear a noble church in honour of St. Benedict, had sent to Greece for skilful workmen in mosaic; and their works mainly contributed to give that great stimulus to pictorial art which led to the ultimate formation of the South Italian School.

The third set of paintings, those for the most part in the upper and middle chapel, giving touching and spiritual representations of sacred subjects and legends from the lives of St. Benedict and his sister Scholastica, have evidently been wrought by one carefully tutored in all those changes in religious art which were introduced under the auspices of the Franciscan and Dominican monks. They apparently date from about the year 1400, and as we know that Subiaco had an artist about that period, who wrote the following inscription (copied by Dr. Ullathorne) on a picture still preserved in the old church of St. Eustace, not many miles distant: "M. Bartholomew, of Subiaco, painted this work with good faith in 1424—'Oh Lady, help me; I ask no reward but this,'"—we may be not very far wrong in supposing that some of these works may have been from his hand.

The last set are those in the exquisite little chapel of St. Lorenzo Loricato, in which a considerable degree of beauty, both of form and tender colour, are blended with a singularly archaic treatment of form, shown more particularly in the draperies. This severity of treatment is extremely unusual at so late a period as the better half of the fifteenth century, when naturalism had already acquired a great ascendancy over the artist mind; and if the painter of the principal subject over the high altar—the Virgin and Child surrounded by Saints—was not attested by his nearly adjoining signature of "Stamatico Greco pictor perfecit, A.D. 1489," one would naturally antedate the picture by nearly one hundred years. As it stands, this series of frescoes curiously illustrates the clinging of the Greek artists at even so late a date, and despite great improvements in feeling, form, and composition, to their old rigidity of action and arrangement.

* An engraving from a careful tracing of the head of the saint will be found in D'Agincourt's great work (Pittura, tav. c.).

"E. L. G." AND THE GOTHICISTS.

ALLOW me to say a few words, Mr. Editor, in connection with this "proposition," given by "E. L. G." in the postscript of his communication to you of last week;—"The real *harmony* of a building with its neighbours *depends solely on general form and distribution of masses, and not at all on decorative style.*" "E. L. G." affects to call this "heresy," but it is evident he is aware it is really such truth as no "monomaniac" could originate. I would add to "E. L. G.'s" "proposition," that the real harmony of a building, with its adjacent

objects, in any and every situation, depends on the same principle, viz. the general form and the distribution of its masses. But what is the result on applying this "proposition" to the question of styles Gothic *v.* Classic?

The Classic—any phase of it,—is pre-eminently a distribution and arrangement of masses, and a combination of general forms; whereas the Gothic is a combination of parts, of which every one has a tendency to become a distinct and culminating decorative feature, and consequently a detraction from the distribution of masses by the exhibition of its intricate littleness.

It is this very "proposition" of "E. L. G." in effect, that gives the supremacy to the Radcliffe Library at Oxford. When seen, either near or at a distance, the general form, and the distribution of masses, in that building, are equally apparent; but its Gothic neighbour, St. Mary's Church, is, either near or far off, a piling together of effective details, each striving to confine the eye to its sole and special value, and quite secondarily its value in relation to the whole composition. A like result may always be observed where two buildings, such as this library and church, are in juxtaposition; and the deduction, whether produced by the exercise of common sense, or by the application of æsthetic culture and principles, must inevitably, on the ground in question, be in favour of the Classic building.

"E. L. G." says that this "proposition" was the "notion" of "the fathers of your Mediæval orthodoxy;" but surely it cannot be the "notion" of their followers of the present day, who have compiled a glossary of "bits," who have become profound in technicalities, who have been captivated and governed by abstract theories of the several parts of a building, who have sought to catch beauty in a moral philosophical trap, and who, having exhausted the novelty of English precedent, have swerved away to Italian adaptation of mere details:—surely these cannot be commencing at the right point of departure; nor can they be progressing, nor can they, according to "E. L. G.'s" own showing, be working in any other than a wrong spirit and an unproductive direction. They have become glibly adept at the parsing and derivations of a dead language, but have overlooked the right meaning of its words, and they will doubtless, ere long, discover that any "translation" they can make therefrom will be not only somewhat cramped, but will be inadequate to fulfil the purpose now required of it. And whatever *real* knowledge has been acquired and disseminated, whatever principles have been formed, and however great may be the desire to resuscitate an outspent artistic power, there cannot possibly result from such sources any architectural progress while they are employed less on conceiving general forms and distribution of masses, than they are on the compilation of old forms and the attachment thereto of varied ornament and distinct decorative details.

One word more with "E. L. G." The idea of Gothic art in his mind appears as widely confused as is the expression of his opinions in his multifarious sentences. Gothic is not synonymous with utilitarian, nor is the universal application of one or two solitary rude principles enough to constitute all works in which they may appear Gothic works. Until all other styles than Gothic are annihilated, let us allow them their distinctive titles, and it would be the better course, until the English language has become more prolific, to call things by their right names.

JAMES C.

WHILE, on the one hand, it is due to you and your general readers, not to occupy the columns of the *Builder* with *retorts* "courteous" or *un*-courteous, having more to do with personal feelings and particular expressions than with critical principles and pervading argument,—still, on the other hand, I would not have my silence imputed to any want of respect for your correspondents, or to any affectation of supercilious disregard for their opponent—or even for their *oppugnant* reasonings.

At the same time it is difficult, with the preservation of argumentative sobriety, to meet a writer who charges the architectural body with "the monstrous, the *inhuman* total neglect of their duty,—*innoxious* structure, physical *harmlessness:*" nor can I but regret that the use of a common mode of expression, "WE," should be adduced as an example of my "astounding self-complacency!" All I meant was to state a supposed case. *I*, you, or he—we, ye, or they, "take a shed, and artistify it into a portico;" *i.e.* the artist takes the primal utilitarian form, and converts it into a thing of beauty. The use of an independent pronoun is surely no great violation of modesty, to say nothing of the conventionally admitted editorial "we."

Of course, Mr. Editor, I expect to be advantaged by correction, if not confirmed by approval, and shall respectfully receive all comments that are fairly urged: neither do I expect more temperance than is consistent with energetic purpose. I am only anxious all who read the animadversions of my correctors should also study the entire of the articles which may occasion them; and then it will be for me, either to leave the public to judge between us, or to say what more may be required of me. Let it be, moreover, remembered, that I am no anti-Goth; but, on the contrary, not less actuated by a reverence for Gothic art, in its proper and most exalted place, than by my love for Classic modification in all places else.

Allow me to take this opportunity of respectfully asking of M. De Jong for an explanation of the following:—"A window of 8 feet square pierced through a wall of 2 feet thickness, would give, in the Greek or Roman style, 0·64; but in the Gothic style 1·00—*i. e.* 0·36 more surface of light in the latter." Unless he means to say, that 8 *square feet* of glass in a Gothic window would give more light than the same quantity in a Greek one, because dividedly spread by the mullions and tracery over a larger circumscribing outline, I am perfectly at a loss to understand him. But the advantage of the Greek window, where such an advantage is desirable, consists in its much larger proportion of light within the *same* circumscribing outline.

GEORGE WIGHTWICK.

MANAGEMENT OF RAILWAY PROPERTY,

SO AS TO RESTORE IT TO ITS PROPER VALUE.

THE attention of the public having now been called to the great mismanagement of railway property, both by the meeting in London, convened to address Government on the subject, and attended on the 3rd of June by a large body of persons intimately interested in such investments, as well as by a powerful leading article in the *Times* of the 5th of the same month; as I have long studied the subject, and have written much upon it, I send you a few observations, which I consider of paramount importance.

In order to be as concise as possible, and at the same time to take a comprehensive view of the question, I will divide my observations under three heads.

1st. With respect to the laying down of the lines.

2nd. As to their construction, &c.

3rd. As to the manner of working them.

Firstly, then. A great *trunk* line should always be considered as a *through* line, assumed to connect two important termini, one, or other, or both being principal centres of commerce, or places of frequent resort, and likely in case of facilitated communication to have much intercourse one with another.

The straightest and shortest practicable route between two such places should be selected, not, however, disregarding the lie of the country, or the wants of the intermediate populations. The possibility of avoiding engineering difficulties should always be taken into consideration; and even a *détour* may be made to some considerable extent, rather than have a long tunnel, or a heavy bank, or lose the traffic, both of passengers and goods, by keeping at too great a distance from coal mines, or wood-supplying forests, market-towns, harbours, or industrial localities.

These main trunk lines, with such advantageous *détours*, should alone be made by the company undertaking them. It is a fallacious system for the principal company to make branch lines, and this system is one of the great causes of the depreciation complained of.

It is plain that if one company were to undertake to make all the railways in the world, the shareholders' hopes of a dividend would be deferred to the Greek kalends, because, so long as works of construction are going on, the capital employed must necessarily remain unproductive, and the want of a clear appreciation of this fact is the main cause of the depreciation of railway property. On the other hand, if all the railways, ever likely to be required, could be made at once, economically, and got into good working order, railway property would henceforward yield immense profits, and be the very best description of investment.

Secondly. The manner of constructing railways has hitherto been far too expensive in Europe, and very especially in Great Britain. It is not necessary to have railways almost level, with hardly any rise and fall throughout their entire length, nor is it necessary to have them nearly straight. It is not necessary to bring the earthwork from the cuttings an immense distance off, in order to fill up great banks: it is better, in many cases, where the lead is long, to throw the material from the one to *spoil*, and to make up the other from side-cutting, in the immediate neighbourhood where it is wanted, and thus the cost of construction may be greatly diminished, and, indeed, it is not necessary to make heavy cuttings and high banks at all, except under very peculiar circumstances. In generally flat countries, lying sufficiently above the level of floods, the ground line may be often taken for the formation of the railway, and the inequalities of the surface may, in many cases, be adjusted in the laying on of ballast; and even in rough country great works need not always be resorted to, for it is now found that much steeper inclines can be advantageously worked than were formerly considered practicable. Again,

Bridges, culverts, and *viaducts*, have been constructed in far too expensive a manner: all that is requisite in such structures is solidity and suitability—that is, sufficient strength, both in form and material, to resist the forces they may have to contend against; so that they should be made of a *maximum* strength, calculated according to their position and requirements, with a *minimum* of materials, within safe limits; but the cheaper and plainer the better, consistent with efficiency and durability.

Stations, in like manner, should not be built at too great an outlay of money. It is capital locked up which will never yield a commensurate return.

It is bad enough to have to make all our roads anew, without having to build also the hotels and inns. All that a railway company should construct is the booking-office, and engine and carriage-shed. Perhaps in addition, they might provide *roof protection* against snow and rain for passengers; but in as simple a manner as possible.

The company could buy land on which to build an hotel at the different stations of the railway, and then invite tenders from persons willing to build it and take the risk and responsibility of such speculation. They would be sure to receive plenty of offers, and might select the one they thought most eligible; but on no account should the company lay out its own money in finding such accommodation. A railway company, to do a good business, should confine itself to its legitimate functions, viz. that of *carrying* goods and passengers.

Indeed, it would be well to put up merely the most requisite portions of the station buildings at first, until the line is opened. Temporary booths would serve for a time, until the profits of the line made it advisable to spend more money, and the capital employed in making the indispensable parts of the railway begins to return in the shape of a dividend, and *then* it might be considered what amount can be advantageously laid out upon certain stations, and *then only properly*, as this depends greatly upon the working of the line.

In the *rolling stock* also improvements may be advantageously introduced; carriages may be made with saloons, and bed-rooms and kitchens. In fact, they may be made small locomotive houses, the saloons with moveable chairs and tables, and stoves, and with head room sufficient to enable people to walk about; the bed-rooms, with berths, from the floor to the ceiling one over the other, as on board ship. The guard might be allowed to supply travellers with refreshments in the same way that the steward of a steam-packet does. In such carriages passengers could breakfast, dine, sup, and sleep nearly as comfortably as in their own homes; and this would diminish the amount of accommodation required in the stations, and, thereby remove a very heavy item of railway expense; and at the same time make the railway pay better, in consequence of affording greater real comfort to travellers.

3rd. For the efficient working of the line a proper *managing director* should be appointed as the company's executive agent, having great discretion allowed, and considerable powers vested in him for a short time: he should, however, be made strictly responsible to the Board for his acts, and there should be no divided responsibility. He should deposit a certain amount of caution-money, submit his accounts regularly to audit, and be in all things responsible as the steward of the company; and only be allowed to represent it so long as he performs his duty honourably, honestly, and well.

There is also another important matter with respect to the working of railways, which has not been sufficiently taken into account, viz.—that while it is necessary to have a sufficient number of *express trains* for the through traffic, it is also important to have plenty of *slow trains* starting from even the smallest intermediate places: much traffic is lost to railways from want of proper attention to this.

The country produces the raw material for almost everything, and would send more goods by rail if slow trains stopped occasionally in the intermediate country places. Timber and stone, hides and vegetables, tiles and bricks, metallic ores, grain, cattle, &c. are alone to be obtained from the country; and when railways have their stations only in towns, they cannot expect to increase their traffic by the transport of such merchandize. But, above all things, they should reduce their fares and their rates of tariff. In the long run it is better to accommodate 1,000 persons at a penny than four persons at 1*d.* simply because the proportion of the number of people who can afford to give a penny often is considerably, incalculably, greater than of those who can or who care to spend the latter sum

on frequent occasions. Therefore excursion-trains always pay well. This system has been tried to a certain extent, and has succeeded; but it has never yet been carried out on railways throughout the United Kingdom in a sufficiently extensive manner. It is not at all surprising to me that railways do not pay better. My only wonder is that, after so much waste and extravagance, they yield on an average upwards of 3½ per cent. This only shows what good property they would be if properly managed: "You cannot have your loaf and eat it."

I am persuaded that good lines, managed well, in the manner I propose, directed by competent men who are desirous of gaining by the dear-bought experience of the past, and taking into consideration the necessary and ever-increasing requirements of the future, may, according to circumstances, be made to yield an annual dividend of from 10 to 15 per cent.

Even existing railway companies might improve their property by selling their great station-buildings to hotel-keepers, by reducing their fares and tariffs, by improving their carriages, and by at once appointing a competent managing director to administer their affairs.

WM. H. VILLIERS SANKEY.

INSTRUCTION IN DRAWING.

IMPROVEMENT OF MANUFACTURES.

In teaching drawing from the black-board, almost every man has his own particular system, each perhaps grounded on the same principle, but all differing in their application. These systems are good or bad, as they are simple or complex. It is evident that to keep children interested in the lesson is of the greatest importance, and this is only to be done by giving them something to think about, and by careful demonstration and explanation to teach them to think correctly. Let them see plainly that everything done has a meaning, and every stroke made, is an addition to the form of the object, and productive of immediate results. This will keep up the interest of the lesson, for when children see beautiful forms made with so much ease, their imitative faculties are at once roused into action, and they will reproduce the object to the best of their ability, and according to their powers.

Some people have a theory that it is an excellent practice to make children draw a certain number of constructional lines, and place curves on this line and on that, commencing and almost finishing the lesson without knowing in the least degree what is to be the result, until the lines they have unconsciously juxtaposed assume a distinctness of form, and the meaning of the object bursts upon them. This method of giving the lesson was, I well remember, very much in favour at Marlborough House, and is still regarded as admirable by many, though common sense has exploded the notion in the minds of those who think on the subject. To lead any human beings blindfold, who are gifted with a reasonable mind, and especially children, at that inquisitive age when they are most impatient of results, is surely bad philosophy. It is not possible that, by drawing the lines of an object without knowing their meaning, so much can be learnt as by drawing them with a consciousness of the value of each line as it is drawn. For how is it possible that the peculiar character and balance of each curve can be given, unless it be known what purpose the curve is to fulfil? Greek vases of the simpler kind are favourite examples for black-board lessons, but it is very unlikely that the elliptic curve, so characteristic of their outlines, will be truly drawn, unless it be explained and illustrated at the time by other sketches, and this is incompatible with the system of keeping pupils in the dark concerning the intended result of their drawing, masking them, as it were, for the time being.

Another equally false practice is that of using a multitude of constructional lines and minute proportions. By this, drawing becomes mechanical, and the object drawn of little consequence; for after numerous straight lines have been drawn in all directions, as a means, the simplicity of a few pure outlines appears a weak result. When such lines have been used continually they become a necessity with the pupil, and a crutch he finds it difficult to dispense with. Now to carry this practice into the drawing of natural objects would be impossible; and it is, therefore, a bad habit to make constructional lines so numerous and important, or to be too minute as to the proportions of every detail in the object given as a lesson. Beyond the central line, vertical or otherwise, on which to obtain the proportional altitude or parts of the figure, and one line at right angles to it showing the greatest width of the figure, beyond these I would have as few constructional lines as possible. The proportions should be pointed out as near as need be, and the drawing of the object in such and such points be left as an exercise of the pupil's eye and ingenuity.

From my experience in teaching at the black-board, I am convinced that the great thing to be accomplished is to teach the children to think, and to think correctly. The crooked line and ill-balanced curve do not so frequently result from the absence of manipulative power, as the ignorance of *why* such lines should be straight, and why others should curve in such and such directions; and it is the duty of the teacher first to create this question in the child's mind, and then to answer it. If a child realizes that a line *must* curve in a certain direction, its hand will soon be obedient to its mind, and the curve will be drawn; but if it is ignorant of the *cause* for such a curve, then there is no influence except that of the eye to take the direction of the hand.

I have myself made a practice of drawing the object about to be given as a lesson, on one side of the board, and questioning the class as to the proportions of it, and what constructional lines will be required to make a correct drawing. This exercises the mind in a precisely similar manner as it would be exercised if a person were required to draw an object from nature. It first makes him see it, and then think about it, and then resolve the best means for drawing it truthfully. Such a method educates the eye to see proportion, and teaches the mechanism of drawing, besides necessitating the habit of thought, and that is no mean attainment. If a pupil can acquire the power of discovering the proportion which the height bears to the width, and the smaller to the greater part of an object, half the battle is over, and care in manipulation joined to this habit of seeing things correctly, will be productive of a power in drawing, grasped so tightly, that nothing will shake it.

In a large number of pupils, a teacher will make the discovery that he may divide them into two classes. First, those who see, but cannot express; and those who find no difficulty in expressing, but cannot see. Time and experience will do much for the former class, but it is a task perfectly Herculean to improve the latter. In a dozen boys, perhaps, there may be three among them who will draw a vertical line obliquely, and are incapable of dividing a line into two equal parts. This does not proceed from want of manipulation, but want of sight, and this distortion of vision is by no means uncommon. To remedy this, the simplest possible examples should be given, those which can be divisible into masses of two equal parts, and no minor divisions be resorted to. The most familiar objects are the best, so that the memory may go hand in hand with the pencil. Common toys, which often have beautiful outlines, may be given, and if a boy draws a kite, for instance, that is broken-backed, and out of balance, appeal to him whether he thinks he could fly such a thing. This will bring its defects home, and I have often seen such an appeal answered by an immediate erasure of the abortive attempt, and a downright flyable kite produced in its stead.

As a rule, no perspective representations should be attempted, for very few children are capable of understanding them. Children are much fonder of facts than appearances, so that simple geometrical exercises are at all times the best. If a child is required to draw a cube from the solid model, he will almost invariably draw the sides equally, though one side be very much in perspective; and it is a task of some difficulty to explain why one side should be drawn smaller than the other. Perspective may be taught by the solid model more easily than in any other way; so that it is better to let perspective drawings alone at first, and trust only to geometrical outlines. This will avoid confusion, and involve no sacrifice of principle.

It is, on the whole, the safest method to divide a class into two divisions. In the first, the most elementary pupils should be taught to draw a straight line, and to divide it into any number of equal parts, and acquire the power of drawing curves through any points on the straight line. When they can do this tolerably well, a curve should be given on one side of a straight line, and the drawing of it, and a similar curve on the opposite side, be given as the exercise. Having, in the first division, acquired a facility in making curves and straight lines in the abstract, in the second they see and learn to apply such lines to the drawing of actual objects, in the selection of which I have before remarked that the teacher ought to be careful to choose familiar objects, rather than such as his pupils have probably never seen.

Having encroached so much on your valuable space, I will ask permission to say a few words more. It is a question whether drawing will ever become naturalized among us, and productive of real good, by the single lesson of an hour or two per week. To become a practical medium for the expression of thought, it needs as much culture as other subjects with like advantages attached to them; and to teach arithmetic by one hour per week would be considered impracticable.

If we consider the subject, both as a national one and commercially, it will be evident that this hitherto neglected branch of education has such immediate advantages attached to it, that to give it a place among the most important will be anything but bad policy. Between the mechanic and his master, and between individuals of every class it will facilitate expression, and save much time in verbal description. But to become a positively useful art, we must adopt a more comprehensive system than that which allows only of one lesson per week,—for practical usefulness cannot result from it. In some instances natural talent will be elicited, as in cases which were mentioned in my last communication, and power will be acquired; but a system which gives power to all, and develops the peculiar talent of individuals, this is what we require. Ready means are at hand. The pupil teachers of parochial schools all learn to draw, and when they can draw fairly on the black-board, they will be able to teach as well, or better, than art-students training to become art-masters; and this, not because they are better artists, but because from practice they are better acquainted with tuition. Why not make use of such means?—and why should not drawing be taught by them as regularly and as often as writing, which experience has taught us is learnt soonest when drawing is taught simultaneously with it? If, as a nation, we decide that every one is a more useful person when he can draw, let us adopt the broadest possible system to accomplish this, and put such a knowledge of drawing in the hands of each as will be a weapon and not a toy. The work hitherto done has been an experiment on the raw material, in order to discover whether it was capable of development; our experience has proved its possibility, and now we have to invent machinery which will enable us to supply the demand. The Department of Science and Art does much, and what it does is *well* done; but this is a drop in the ocean in comparison with what might, and must be done, by some means. The Museum at Brompton contains such an arrangement of materials and illustrations for education as have never yet been seen in one place, and this will do much: the district schools of art are also boons to the working classes; but all these will not have one tithe of the influence upon British art as the seeds of art sown in the minds of young children by the teaching of drawing.

And before long we must do something, for England has surely been in the rear long enough. We established schools of design as a means of improving ornamental art, and after twenty years' experiment, they have taught us that we began at the wrong end of the task. It was of little avail to produce well-educated designers for manufactures, and leave the mass of the people incapable of appreciating their works. This was to furnish the supply before the demand existed, and common sense would have told that bankruptcy must result. It mattered little to a man who was about to furnish a house that such-and-such a wall paper was from the Government School of Design. He could not see the value of its superior drawing, or appreciate the delicacy of its chaste harmony of colour. What he selected was a paper which showed such an amount of knowledge and expression as was the result of thoughts equal in refinement to his own. Thus the country peasant who aspires to a papered parlour, selects a paper on which the adventures of "Uncle Tom" are expressed in coarse and vulgar colours; and the farmer, one in which the various incidents of the chase are delineated. The tradesman chooses a showy pattern that he supposes will set off his room to most advantage, and impress upon the world that he is a thriving man. The rich man papers his drawing-room with a pattern that has positively every colour in it, and for the multitude of blocks which produce his paper, he readily pays a handsome price; while the aristocracy, when they stoop to paper, will be content only with the last French triumph, bouquets of flowers in profusion standing roundly from the wall: exquisite specimens of block-printing will alone satisfy their more highly-refined tastes, subjects which most nearly approach their own pet study of water-colour flowers.

Thus the mass of people select, each person choosing the pattern which best expresses his own power or thought. That this is the case can hardly be doubted by any one who takes the trouble to observe for himself. Let him mark the kind of subjects, and their position in the scale of art, which different classes of people possess. He will detect in the peasant's cottage images glaring with bright blues, reds, and gold, on his mantelpiece; and on his walls figures of precisely similar colours: his jugs and cups, with outlines, having as much beauty in the same scale of art, and, save where sacred necessity compels, the work of his own hands will have the same kind of expression, and show the same habits of thought as the works that are made for him by others.

The reason of this is, that such things *fit* him. They are the just exponents of those thoughts which in his uneducated state he imbibes from Nature. He

ST. GEORGE'S SCHOOLS, BATTERSEA.—MR. JOSEPH PEACOCK, ARCHITECT.

sees that the sun is golden, the sky blue, and evening clouds are red; that leaves are green, sunsets and heather are purple, and fruits and flowers orange-coloured. In all these he sees *facts* alone; he detects no proportion, and is not sensible of that grand law of nature by which some objects retreat that others may advance, and that it is the subtle *proportion* of things which he sees in nature which produces in him emotions of pleasure. He has not learnt to realise this. He sees facts in the abstract, and ignorantly supposes they will be ever fresh to him if he reproduces facts, and scatters his own version of them broadcast around him. He does this. He selects what exactly comes up to his own measure of thinking, and if by persuasion he is cajoled into taking another choice, he feels afterwards that it does not fit him: he will be his own master another time.

Every class of people have their own version of nature, and will proceed unconsciously to express those versions around them. All classes of people in England are ignorant, more or less, in matters of art, and therefore all classes will select wrongly, and only have such bad things as will run parallel with their own degree of bad taste. Good works they reject because such things are above them, and they act honestly,—to do otherwise were vile hypocrisy. It is on this honesty we rely, for from this we argue that it is ignorance alone which causes the evil,—one which knowledge and education will therefore remove. This brings me to the matter in hand.

The School of Design system, then, was to produce a supply of a superior class of ornamental art, and neglected entirely the demand for it, which did not exist, and which was not created by the school's operation. This was untradesmanlike, and has consequently been a failure. The system pursued by the Department of Science and Art is of the opposite character: it is essentially tradesmanlike, and will as certainly be successful. The prime feature in it is to create a demand for superior manufactures, and in England the demand invariably creates the supply. English people will *not* have things thrust down their throats, and they *will* have what they want. To create a want, therefore, is the surest manner of producing a supply.

Instead of instructing the solitary designer, the mass of the people will be educated, individual superiority be supplanted by general excellence. Now the schoolmaster is abroad: incompetency is ousted from high quarters; and when art-knowledge and art-feeling are common, artists must be comparatively elevated.

That this must follow is written in the world's experience, for never has mankind felt a want which great spirits have not risen and ministered to.

WALTER SMITH.

ST. GEORGE'S SCHOOLS, BATTERSEA.

ST. GEORGE'S Schools, Battersea-park, have been completed, and were opened in May. They form a pretty group of buildings, close to the South-Western Railway, on a fine open site, which was given by the freeholder. Accommodation is provided for 200 boys, 150 girls, and 150 infants, and large class-rooms for each school, with three separate residences for the teachers. They are built of white brick, with Bath stone windows, dressings, and copings, and the roofs are covered with tiles. The girls' school is over the infants' school, and is reached by an open stone staircase, which communicates also with the residence and playground. The architect for the schools was Mr. Joseph Peacock: the amount of the contract was 3,200*l.*

THE DECORATIONS IN MANCHESTER FOR THE QUEEN'S VISIT.

THE newspapers have given full particulars of every incident connected with the visit of Her Majesty and the Prince Consort to the treasures of art collected at Manchester, and we shall therefore merely refer to a few of the preparations in which the arts of construction and design were employed to give substantial form to the loyalty which every heart in Manchester felt towards the exemplary Queen and her illustrious companions. It is well known that Her Majesty was the guest of Lord and Lady Ellesmere, at Worsley Hall, about six miles from Manchester (designed by Mr. Edward Blore, and illustrated in an earlier volume of our journal). The villages of Worsley and Swinton, and the township of Pendleton, were gaily decorated with arches, flags, banners, garlands, and ornamental devices. The first triumphal arch of magnitude on the route to Manchester was at the Pendleton tollbar, erected for about 100*l.* raised by subscription, consisting of three arches upon eight double columns, ornamented with crimson, white, and blue drapery, flags, and flowers. The design was by Mr. Dallow, and was selected from six. On Tuesday and Wednesday nights this arch was lighted up by 1,500 variegated lamps. The corporation of Salford erected triumphal arches at Windsor-bridge, and at the entrance to the Peel-park: both were creditable, and the latter is suggestive of a more permanent structure in the same position as a fitting entrance to the People's-park. An effective style of decoration was adopted for the principal buildings of Salford, something in the Venetian style, in which richly-coloured hangings from the windows formed the principal element. In Manchester, the council of the corporation voted the limited sum of 1,000*l.* (!) from the corporate fund to display the loyalty of the city; and had it not been for a large amount of private liberality in this direction, Manchester would have cut a sorry figure with its two triumphal arches. The first of these arches was at the Albert-bridge, which divides Manchester and Salford. It was in the Roman style of architecture, and was composed of three divisions, the central one over the carriage-way measuring 24 feet wide and 36 feet in height to the soffit; and the two side ones over the footpaths measuring each 7 feet in width and 17 feet in height. Above the side arches were massive cornices and balustrades, from which the central arch sprang, the crown of which, decorated with a beautiful cantilèvre cornice, was upwards of 50 feet from the ground. Surmounting the central arch were the royal arms, ornamented with a trophy of flags, and immediately underneath, the arms of Manchester. Over the side arches were the letters "V. A.", surrounded by floral wreaths; and festoons of roses and evergreens ornamented the piers of the arches. Rising from the top of the side arches were colossal figures; those facing Salford representing "The Arts" and "Industry," and those on the Manchester side representing "Paint, ing" and "Victory." Mr. Harrap was the builder and Mr. Whaite the decorator.

The triumphal arch erected by the Corporation at the boundary of the borough, in the new Shelford-road, a little beyond the Chorlton-road, was a substantial-looking structure, in imitation of grey granite. It consisted of a lofty arch over the carriage-way flanked by two smaller ones over the footpaths. Round the side arches were evergreens gracefully festooned, and their entablatures supported balustrades, from which the central arch sprang. The spandrils were decorated with allegorical figures,—on the south side, "Fame" blowing a trumpet, and holding a laurel crown in her hand, and on the north "Victory" extending the coronal as though to lay it on the brow of Queen Victoria. The entablature of the large arch rested upon mouldings, between which small garlands of evergreens and flowers hung in festoons. The face of the key-stone was hidden by a shield, bearing the arms and motto of the city of Manchester, and above all was a trophy of flags, enclosing the royal arms. The east and west façades of the arch were similarly decorated. The cost of this structure was 300*l.* and its substantial character was highly creditable to Messrs. D. Bellhouse and Sons, by whom it was executed.

At Old Trafford, near the approach to the Exhibition building, an arch of the Italian style of architecture had been constructed. Its measurements were 50 feet to the crown of the arch, 65 feet to the top of the flag-staff, 60 feet in width, the span was of

33 feet, and each of the smaller arches or bowers was 6 feet wide. The arch was of light stone colour. Round the centre, in gold letters, was displayed a "Welcome to Old Trafford," and within the large arch maroon cloth was draped in festoons, with gold cord and tassels. A plume of prince's feathers covered the face of the keystone, and from it drooped graceful festoons of flowers, which were attached to the entablatures of the side arches. Above the plume, and surmounting the whole, was a trophy of flags, with the Royal arms in the centre. There were plumes of feathers over the keystones of the smaller arches. The entablatures were inscribed with the names "Victoria" and "Albert," in gold letters: over the side arches, in elliptical tablets, were "Victoria Adelaide, Albion," and "Frederick William, Prussia," and on the pedestals, in similar tablets, were the names of all the Royal children, "Albert," "Alice," "Alfred," "Helena," "Louisa," "Arthur," "Leopold," and "Beatrice." The pillars were ornamented in the arabesque style, and at the top they were turreted, and supported a number of plants in pots. Inside the centre arch at the base, the ellipses were inscribed "The tribute of Old Trafford." On different parts of the arch were displayed English and Prussian banners, and the arms of Manchester, Salford, Lancashire, and Cheshire. Both façades were alike. This triumphal arch was erected from the proceeds of a subscription in the neighbourhood. The greater part of the route through the city was lined with spectators at the windows, on balconies and upon stages, platforms, and stands, all of which underwent the scrutinising examination of competent surveyors, who were engaged by the city authorities for the purpose. Generally speaking, the character of the decorations was in advance, as regards taste and design, of that on any former occasion of a similar kind in Lancashire.

On Wednesday, the 1st inst. the Prince Consort, the Prince of Prussia, Prince of Wales, and Prince Alfred, after a visit of three hours' duration to the Exhibition, were conducted over the works of Messrs. Macintosh and Co. where the vulcanised Indian rubber fabrics are manufactured; also over the Print Works of Messrs. T. Hoyle and Sons, at Mayfield. On the way to Worsley, a pause was made to view the manufacturing establishment of Messrs. E. Armitage and Sons, at Pendleton. The Royal party seemed determined to make the most of their time, and showed how much may be accomplished where there is "a will" as well as "a way."

STAMPED OR INCISED STUCCO.

WE have already mentioned the mode of decorating stucco introduced by Mr. Ferrey. We now add that gentleman's own notice of the subject, communicated to the Institute of Architects at a meeting, as already mentioned, on the 15th of June:—

I wish to call attention to some specimens of stamped stucco, from which I think it may be seen that it is possible to obtain large surface decorations at a small expense, and that a common material, which has hitherto in modern practice been only used for perfectly plain purposes, may be made the means of much successful enrichment. My mind was first directed to this matter by a desire to obtain some sort of suitable ornamentation for the interior of churches built at small outlay; for it appeared to me that when every effort was making to render churches both solid in construction and beautiful in material, by the use of costly marbles for walls and polychromatic devices for internal wall surfaces, there should be some attempt (where economy in cost was obligatory), to employ common products in such manner that in their natural use they should conduce to church-like effect, without adopting those surface embellishments which, in their application, become necessarily expensive.

Much attention has properly been given to a better use of bricks for ecclesiastical buildings, and good effect has been produced by them with stone and flint: naked brickwork, however, for the internal facing of walls is less successful, and the usual way of obtaining durable surface decorations is by painting upon metal plates and affixing them to the walls. With many people, however, there is a strong dislike to polychromy. They will sanction any extent of neutral tint or bi-colour, but object to having coloured decorations, however well executed. This may be, and probably is, a mistaken view; but the prevalence of the opinion is a "great fact," and must be dealt with accordingly. Any kind of enrichment, therefore, which can be produced in the plaster, and is consistent with "true principles of Mediæval art," is worthy of notice. Anything affecting to be what in reality it is not should be excluded from use in churches, where truthfulness ought to prevail. Plaster is therefore very properly forbidden to be used for columns and arches, or any constructive members which ought to be of stone or some other rigid substance.

In former times the plastered walls of our churches were covered with coloured devices and texts, or illustrations of scriptural subjects: entirely plain surfaces were seldom to be found; but in later periods a Puritanical spirit prevailed, which led to the concealment of all these decorations by repeated coatings of whitewash. Happily a more enlightened feeling now exists, and there is a general desire that our churches should be suitably ornamented; indeed, nothing hinders decoration but the want of funds, and in all modern churches there is a seeking for some economical mode of enriching the internal wall surfaces. A very cheap and simple mode of ornamentation seems hitherto to have remained unattempted. It is well known that the external rough casting on old wooden buildings was stamped or wrought in small devices, known by the term "pargetting," but it never assumed the importance of extensive wall decorations, as, when stone and brick entirely superseded the use of quartered oak framing, the system of pargetting also ceased. There seems no reason, however, why this principle of design should not be largely used in another way. The plan now proposed is to impress the common stucco with geometrical and other forms: they may be applied according to the taste of the architect, either under string courses, around arches in spandrils, soffites, or in large masses of diapering, and texts may be imprinted on the plaster instead of being simply painted on the walls. If colour is desired, it can be effected by mixing the desired colour with the coat forming the groundwork, then by laying the stencilled pattern against it, and filling in the solid portions of the device with the ordinary stucco or plaster.

It will be observed that I have used the word stucco in this description and not plaster: it is not, however, to be supposed that this process cannot be used with fine plaster or any cement which does not set too rapidly. My object is to show that the commonest material is capable of being employed, and that it may be impressed *in situ*. If common stucco, therefore, may be thus treated, it shows what opportunities are open to us for giving interest to large wall surfaces which are generally left plain.

My bringing this matter before the members of the Institute is simply with a suggestive view: each person will judge for himself as to the particular way in which it may be applied. The cost of making the brass patterns is not expensive, and there is no reason why fresh designs should not be made to suit any building: thus the frequent repetition of the same ornaments would be avoided. This should not aim at superseding any higher mode of decoration; but that it may be made conducive to good effect in the interior of buildings, I can entertain no doubt.

OPPOSITION TO SANITARY PROGRESS.—THE PROPOSED NEW PARKS.

AT no period of the history of this metropolis has the necessity of all classes and districts working earnestly together for the general good been more clearly evident than at the present moment, and yet, unfortunately, there are large numbers in this metropolis who think that they can safely live for themselves alone. Westminster, so well provided with spacious parks, made and kept up at a large public expense, grumbles to afford a similar means of health to the rapidly-increasing populations of Finsbury and Bermondsey. Other neighbourhoods are similarly opposed, and what is more curious still, it is said that the Corporation of London will strongly oppose the levying of even a small rate for the establishment of new parks.

We ask those who, living year after year in particular localities, are apt to forget how intimately connected even those parts of London far distant from them are with themselves, to take up a map of the metropolis and carefully consider its peculiarities.

First, let London citizens who are opposed to providing means for the health of districts which are now parts of this huge capital, mark carefully the limits of their own territory, and see how small a speck it is in proportion to the surrounding mass.

Then let others look how unbroken is the almost bewildering multitude of human dwellings: draw a line round the outskirts, and then see how completely London is a single city, each part depending more or less upon the other for the good sanitary condition of the whole.

From the Regent's-park eastward to the Victoria-park, the whole space is thoroughly blocked up with houses. From Camberwell to Holloway, there are nothing but close and continuous streets, only broken by the Thames. The Regent's-park, Hyde-park, and the more venerable St. James's-park, which were once as Battersea and Victoria parks are at present, quite in the suburbs, are widely belted in with buildings, and persons who now view them admire the forethought of those who caused their formation at a time when it was possible to obtain the ground on easy terms.

A reference to the map will show how admirably the proposed park for Finsbury is situated at an angle towards the north, between the Regent's and Victoria Parks. It is evident, by the extent of building during the last twenty years, that if advantage be not at once taken of this site, in less than half-a-dozen years it will be covered with bricks and mortar, and those who come after us will not conceive a very favourable opinion of our present enlightenment.

Let us again cast a careful look at the map, and view with consideration the mass, which is girt by a skirting line of about thirty-seven miles, and reflect that great as is this surface covered by two millions and a half of living creatures, in less than fifty years the mass must, according to the present rate of progress, be doubled; and then, if such spaces as the Finsbury and Bermondsey Parks and Hampstead-heath are spared, they will indeed be like water in the desert.

One would think that it was scarcely needed now to argue further the necessity, with this extraordinary population, of measures of sanitary improvement sufficiently applicable and extensive for the emergency; but when the representatives of certain districts rise up in Parliament and oppose the formation of metropolitan parks, it is our duty to remind some of our readers that to a considerable extent the health of every individual in London depends upon the proper condition of the whole. The miasma which rises from the ill-drained districts of Bethnal-green and other parts cannot fail to reach in an adulterated but still dangerous form places far distant.

By purifying the large neighbourhoods of the poor, we at the same time purify the halls and palaces of the wealthy. With the exception of drainage, no sanitary means are more effective than the plentiful mixture in the midst of our buildings of large open green spaces well planted with trees. Independent of this and various other advantages, the metropolitan parks are places of pleasant resort to thousands of hard-working and pent-up inhabitants. Jones the carpenter, who has half-a-dozen children, cannot afford often to take a trip by the railway; but if there be a park at anything like a reasonable distance, Mrs. Jones and he will walk off with the children and spend a few hours in the open air, instead of sitting confined in a close dwelling-house, or, perhaps, resorting selfishly to the public-house.

We hope that the report of City opposition is without foundation, for we cannot forget that the Moorfields, Smithfield, and some other lands, were intrusted to the corporation of London as green places for the recreation of the people for ever! Another peep at the map will show how valuable a little park—a place of recreation—at Moorfields would now be. Let us hope that the error of allowing the misapplication of the places just mentioned may be taken into consideration, and that in return the City authorities will give a vigorous support to the proposed new parks.

FOREIGN INTELLIGENCE.

Ulm.—The Great Organ.—The building of this huge instrument has caused quite a sensation in Germany. M. Walker, the organ-builder, has now given it over to the Committee of the Minster, and it has been consecrated by the *Pfarrer*. The German papers say that this organ had already a history of its own, before it was completed. It is so far back as the year 1838 that M. Walker made a plan for this huge instrument. Several plans were made subsequently, one improving on the other, and increasing the expense from 15,000 to 28,000 florins. Its building lasted upwards of two years, and the transactions about it nearly eight. It has two manuals, and 4,000 pipes, and is considered now the largest in Germany.

Weimar.—Architecture and Poetry.—The restorations of this splendid Mediæval castle are pushing on with such activity, that the architect, M. Von Ritger, will remain for the next two months on the spot. On the occasion of the great *Singerfest*, in September, the company will be conveyed by a special train to this fine restoration of a historically important locality.

The Tunnel of Mount Cenis.—This grand manifestation of the mechanical enterprise of our age, has been decided upon by a vote of the Sardinian Parliament. It is Professor Colladon, of Geneva, who is the originator of the plan, and it is said that some preparatory experiments are to be made on the Mount Salève, near that city, at which the Premier, Count Cavour, will be present. The Mount Cenis tunnel will have a length of 12 kilomètres, and it is asserted that the stupendous engine can operate at a distance of 6 to 7 kilomètres (!). Some improvements have been lately added by the engineers, Messrs. Grandis, Grattoni, and Sommeiller.

ESTIMATES AND COST OF METROPOLITAN IMPROVEMENTS.

THE First Commissioner of Works has presented to the House of Commons a report with reference to the present condition of the metropolitan improvements, under the direction of his department, now in progress, and the sums of money required to complete them. We have received some trenchant observations on the probable great excess of cost of the works over the, asserted, estimates by the Government architect; but the charges are made to look so grave, that we must seek for some information on the subject before deciding as to the publication of them.

OXFORD ARCHITECTURAL SOCIETY.

THE nineteenth annual meeting was held in the Society's Rooms, Holywell, on Monday, the 22nd of June. In the report laid before the meeting on that occasion, the committee said,—

"The important architectural works which were enumerated in the last report are now either completed or are rapidly approaching completion. The Chapel of Balliol College, which is nearly ready to be opened, is remarkable for considerable vigour and originality of design. At Exeter College, the library is completed, the rector's new house nearly so, and the walls of the magnificent chapel are rising rapidly. All of these works are most satisfactory, and worthy of the eminent architects who are employed on them. In the rector's house especially, Mr. Scott has practically vindicated the suitability of our national style to domestic purposes. The windows, though strictly Gothic, admit abundant light, and are in every respect as convenient as the common sash windows in ordinary dwelling-houses.

The decoration of the president's room at Magdalen College has been completed by Mr. Crace.

The committee congratulate the society on the fact that the restoration of coloured glass to the windows of the chapel of this College has been intrusted to Mr. Hardman, of Birmingham, whose works are now generally admitted to be more successful than those of any other glass-stainer.

The works at the New Museum proceed steadily and satisfactorily, and there can be no doubt that the high anticipations which have been formed of this building will be fully realised. The committee feel that they cannot enter into a detailed criticism of so great a work until it shall be completed.

The architects of the Museum have recently completed a new debating-room for the use of the members of the Union Society, in which they have successfully adapted Gothic architecture to the peculiar requirements of the case.

The chancel of the parish church of St. Peter-in-the-East has been partially restored, and in that of Holywell very important and extensive alterations have been carried out. In the latter church, decorative colour has been largely employed, especially in the roof, and on the eastern and western walls, where groups of angels have been painted with admirable effect by Mr. Bell, a London artist."

THE SURREY ARCHÆOLOGICAL SOCIETY.

THE fourth annual general meeting of this society was held on Monday, the 29th ult. at Dorking, when a pleasant day was spent, though archæology did not occupy a very prominent position. A large number of the members of the society assembled at the Deepdene, shortly after noon, where the business proceedings of the association had been announced to take place at half-past twelve o'clock, by the kind permission of the owner of the mansion (Henry Thomas Hope, Esq. one of the vice-presidents). The business was confined to mere routine, and on the election of members and no papers were read. A proposition was made by Mr. J. W. Flower, that the society should publish an archæological map of the county, which elicited some discussion, and was agreed to by the council.

The meeting then broke up, and the company proceeded to view the numerous treasures of art contained in the Deepdene, and afterwards rambled through the delightfully picturesque grounds surrounding the mansion.

Arrangements having been made by the Committee for a visit to Wotton-park, by the kind invitation of W. J. Evelyn, Esq. (one of the vice-presidents of the society), the company left the Red Lion Hotel, in carriages and vehicles, shortly before three o'clock. They were hospitably received by Mr. Evelyn, who conducted the party over the house and grounds, rendered classical by the residence there of the celebrated John Evelyn, popularly known as "Sylva Evelyn," and the author of the often quoted "Diary," and other well-known works. Many of his books are still preserved in the library at Wotton.

At half-past six o'clock, a large party, including many ladies, sat down to dinner in the Assembly-room, Red Lion Hotel, under the presidency of Mr. Henry T. Hope. The "feature" of the meeting was a speech by Lady Elizabeth Wathen, in reply to the toast of "The Queen, the Prince Consort, and the Royal Family." Professor Donaldson returned thanks for the visitors.

THE SUSSEX ARCHÆOLOGICAL SOCIETY IN NORMANDY.

A CHOSEN band of the Sussex Archæologicals have made a descent on the coast of Normandy, and a writer under the recognizable signature "M. A. L." has communicated an account of the invasion to the *Brighton Herald*.

Referring to the joking terms in which the visit had been spoken of, circulated by us at the time, when it was remarked,—"Master Lower would be the Master Wace of the enterprise, and indite a poem thereupon; and the facts of the invasion would be pictorially handed down to posterity by the facile fingers of certain Lewes Matildas;"—the writer says the French papers also took up the theme; and, to crown all, *Le Charivari* devoted a whole column of its humour to the subject under the title of "L'Archeologie Nomade," commencing "Archæology again raises its head in England, where it had not dared show any sign of life since Walter Scott turned it into ridicule in his novel of 'The Antiquary.' The archæologists of that country have evidently been afraid of taking old dykes for Roman remains,—a blunder which the *Times* would not fail to communicate to all Europe.

Of late the archæologists, who had remained since the publication of 'The Antiquary' in the state of a secret society (!), have held a public meeting at Newcastle, under the presidency of Dr. Bruce, and they have decided on undertaking a long scientific excursion on the continent. A steamboat freighted at the expense of the society will convey them first into France. The English, whom we have so pertinaciously regarded as a people entirely devoted to the trade of Windsor soap and Birmingham razors, have always money at command for the most eccentric of their whims. In France, the country of arts, of letters, and of science, no scientific expedition whatever could gain the adhesion of a hundred people.

The English are to bring with them an historian, M. Lewes Matiedas (!?) commissioned to write daily a report of the expedition, and a poet, Monsieur Lower, whose mission will be to sing all the discoveries of importance.

For instance, if they lay hands upon a Gallo-Roman sepulchre, M. Lower will immediately seize his lute and compose a ballad.

If they find a pot of coins, M. Lower will begin, off-hand, to chant a dithyrambic measure.

Should they discover an ancient Gothic arch, in church or in castle, M. Lower will tune his lyre and chant an ode.

All this time Monsieur Lewes (!), whom Heaven has not endowed with the *secret influence*, confines himself to the duty of entering upon his register a dull record of all the discoveries."

Dieppe and Rouen were visited. Speaking of the latter the writer says:—"We went, of course, to St. Gervais, the death-place of the Conqueror. Here, after evening service, we descended into an ancient crypt, and saw the tombs of St. Mellon and St. Avicienne, the first and second archbishops of Rouen in the fourth century. This vault is considered by French antiquaries as a genuine relic of the Roman ages; but Dr. Bruce shook his head dubiously, for which I was sorry. At all events, there are Roman tiles and other marks of great antiquity to be noted in the construction; and it must not be forgotten that Rouen, under the name of Rothomagus, was a well-known Roman station."

Caen followed, and then Bayeux, where Dr. Bruce lectured on the celebrated Tapestry no longer preserved as a roll as it was when we saw it a few years ago, but stretched upon both sides of a stand running round the apartment, and carefully covered with plate glass:—"Singularly enough, its first and its last scenes are laid in Sussex. In the first, Harold with his knights is represented riding to Bosham, in order to cross over to Normandy, where he subsequently made a solemn oath not to disturb the pretensions of William to the English throne: in the last, we behold the death of Harold, and the flight of the English at the battle of Hastings."

The trip occupied six days, and no event occurred to mar the tourists' pleasure, or to break the arrangements of the programme. Fortunate tourists! Amiable recorder!

THE MANCHESTER EXHIBITION BUILDING.

SIR,—If we are to have buildings of iron and glass for public purposes, and it is most desirable that we should be able to avail ourselves of such constructions, we must not gloss over or shut our eyes to weaknesses and failures which become apparent, but boldly seek for the cause of them, and prevent, if possible, their recurrence in other similar buildings. I think it very desirable, therefore, that you should be informed of the real state of the case in respect of the storm at the Art Treasures Exhibition building on Saturday afternoon, the 4th inst. Of course the matter will be smoothed over with "immense amount and suddenness of the rainfall,"—"accidental stoppage of the gutters and down-spouts,"—&c. &c.; but this will not alter facts, which are as follows:—About six o'clock in the afternoon a tremendous thunderstorm commenced, with heavy fall of rain, which lasted with great fury for above a quarter of an hour. The rain-water descended in torrents in the inside of the building, all along the line of the gutters on each side of the main arched centre, falling upon the glass cases and other articles beneath. Most fortunate it is, that these articles, so valuable, were in glass cases, else the damage would have been irreparable. The water also found its way into the ancient and modern galleries, and particularly into the Hertford and Water-colour galleries, and energetic steps had to be taken in the instant removal of pictures. From what I could see, I should think that no damage was received by any of the articles; but this was owing to the promptness of the measures taken by Mr. Deane. The building itself was proved to be quite uncalculated for an extraordinary amount of rainfall, as it is hardly likely that all the gutters should have been simultaneously stopped by accident. The gutters and spouts were not sufficient in dimensions to carry away the water falling on so large a surface. I wonder which of the three gentlemen who have fought so hard in their turn for the honour connected with the building, will accept the responsibility of this part of the arrangement.

A. LEAK.

NEW BATHS AND LAUNDRIES AT MANCHESTER.

THE second establishment of baths and laundries, erected by the Manchester and Salford Baths and Laundries Company, was opened on Wednesday, 1st inst. in Mayfield, London-road, Manchester. The first establishment by this company, which has been in successful operation for a year or more, is in Greengate, Salford. The company intend erecting other similar establishments in different populous parts of Manchester. The Mayfield baths are in the midst of a densely populated district, occupied almost wholly by the working classes. The building has a neat and ornamental appearance, and stands on a piece of ground bounded by Boardman-street and Store-street. According to the *Manchester Courier*, from which we get these particulars, the style of architecture partakes somewhat of the Italian. With the exception of the end used as the residence of the superintendent, the building is only two stories high. In the former part another story is added; and immediately over it rises the chimney which carries off the smoke and steam. This chimney is less ugly than many of its neighbours, of which there is a profusion in that locality. The front of the building is composed of brick, with stone dressings. The length of the frontage is about 120 feet. Of this space, 80 feet are devoted to the first and second class male swimming-baths, the remainder being occupied by the laundries. The doors leading to the men's baths (of which there are two classes, first and second) are on the Store-street side. There is a separate entrance for each class. The first-class baths are approached through a waiting-room 25 feet long by 18 feet wide. The plunge or swimming bath is of large proportions, being 70 feet long by 25 feet wide, and averaging 4½ feet in depth. The bottom is formed of concrete, upon which is a layer of cement, the whole being covered with polished Yorkshire flags. The side walls are first covered with cement, and afterwards lined with porcelain tiles, bearing a neat coloured border. Surrounding the bath are thirty-two enclosed dressing stalls; while over these, supported on ornamental iron pillars, is a gallery, in which are the men's private warm baths, of which there are seventeen. These are 8 feet by 7 feet, the height being about 12 feet. Separated from the gallery by an open corridor, and facing the front of the building, are five extra first-class private baths. In addition to being a little larger than the others, these are supplied with a shower-bath. The second-class swimming-bath is in most respects similar to the first. It is entered through a waiting-room adjoining that of the first-class, and is fitted up with every regard to comfort. It is of the same dimensions as the other, but only a portion of the dressing-stalls are enclosed. In the gallery are the private

warm-baths, and in the front, facing the street, those which are called extra, and for which an additional amount will be charged. The roof of both baths is in open rafters; the light, of which there is no lack, being admitted by side windows, instead of by sky-lights, as is the case in the building in Salford. The women's baths, although in the same building, are entirely distinct from the other part. There are two separate doors from the streets, and two waiting-rooms, first and second class. From these a staircase leads to the respective class of baths, of which there are four of the first, 8 feet by 6 feet; and seven of the second, which are a little smaller. The laundry department occupies the end of the building near Boardman-street. The waiting-room, which is 21 feet by 16 feet, leads directly into the laundry, which is on a level with the street. The room is 64 feet by 38 feet, and is filled with all the necessary apparatus for the various operations in washing. There are six first, and thirty second, class departments. The former are provided with three tubs for washing, boiling, and rinsing; while the latter have only two, those for washing and boiling. Each compartment is provided with an iron "maiden," which is placed over the hot-air stove, and upon which clothes can be dried in about twenty minutes. Access can also be had to two patent wringing-machines, which, by a very simple process, remove all the water from the wet clothes, and save a great amount of labour. The ironing-room adjoins, and will be fitted up with stoves. For the purpose of supplying the hot water and steam there are three boilers, of twenty horses' power each. The water, which is obtained from the corporation, is stored with a tank, placed over the boiler-house, which holds about 3,000 gallons. The quantity which is contained in the baths is between 40,000 and 50 000 gallons, and the time required to fill each is about two hours. Arrangements have been made for carrying off the waste water. The building has been erected after the designs of Mr. Thomas Worthington, architect, King-street, who was also the architect of the other establishment, in Salford. The cost of the establishment, exclusive of land and furniture, will probably amount to 9,000*l*. The contract for the building has been executed by Mr. Robert Neill; and for the works connected with water and steam supply by Messrs. Melling and Son, of Rainhill.

FRATERNITIES OF ART.

BEFORE Mr. White (who addressed so well-intentioned a letter to you, published in your Journal, p. 361) gathers together his fraternities, let him remember that the arts are best developed under reflected light; and no fraternity will be useful that does not embrace men of various pursuits and abilities. The arts are mutually serviceable: they borrow phrases from each other: painters respect *tone*, and musicians talk of *light and shade*, and thus the first of all considerations in such fraternities is to make the basis wide enough.

A society of architects would but prove the low state of architecture in England. Ask them what it is? they would each give a different definition. How would it have been of old? Ask Phidias: he would say, "It is an art which, working with its own materials, under its own sun, and its own blue sky, raises, to unknown but venerated idealities, temples, of size sufficiently large to give them *grandeur*, of form so closely allied to the proportions of the human frame as to give them *beauty*, of hues so delicate as to please the *eye*; emanations of minds of the highest genius, appreciated by minds of the lowest cultivation,—the glory of their own age when in perfection, the regret and study of future ages even in their decline."

Ask Bramante, when he first leaned over his design for St. Peter's: "It shall be," he would have said, "an altar which shall attract the religionists of the world to the shrine of their faith: glorious in intention, splendid in decorations, vast in extent; its crowning dome shall be a wonder of construction; its very pavement a marvel of splendour: the throngs that fill it shall find their faith exalted by the very glories which surround them."

Ask Wren: with more simplicity, he would have said,—"We, too, will have our central cathedral,—a church worthy of our country; simple in intention, of native workmanship, of native material;" and has he not succeeded? Of all English buildings, St. Paul's, with its dim domed outline against its British sky, and its softened tiara of hazy columns beneath, has most emphatic power. And yet his was a struggle to produce an effect from new combinations of very old materials. He was trammelled with the forms of the ages past. He was eloquent, but it was in the eloquence of the language of Rome.

And when we *did* get Stewart's "Athens," and Adams was laughed at, and Wren and Vanbrugh were thrown into shade, what the better were we? Smirke, it is true, tried strongly to bring out the capacities of Grecian art in England, but the nation grew tired of it, and asked again for the picturesque projections of Whitehall,—the mixed Italian of Palladio,—anything for effect, for contrast, and novelty.

Gothic architecture, that beautiful emanation of the circular arch, the pointed roof, and the pliant *hand* of the old masons,—which has sprung up in cathedrals, and passed through its four marked eras—now lives like a magnificent shrub whose every leaf has been developed, and can but fall when every hand has ceased to gather cuttings from the used-up stem. Such was, and such is, architecture.

Now, let Mr. White think of this: and then talk of fraternities of architects. We want not these, but we may want fraternities of art: but, even these latter, to be useful must be wide: architects, painters, men in fact of all liberal pursuits, must associate freely together less to serve one particular study than to assist all studies, before art can again become the light-giving and spirit-stirring element it once was: and then, too, it would be a solitary affair if the nation remained unmoved under its influence.

Art must then widen itself: it is wholly unselfish: it enthrones itself with the highest capacities of humanity, or it is nothing.

Take Ruskin: admit his theories; or, if not, confute them. The broad truths they contain draw with them many unopposed errors, because they *are* so broad, so human, so unprofessional. When we have more Ruskins we may hope for fraternity in architecture—but not before. AN ARCHITECT.

CHEAPENING GAS AND ITS RESULTS.

THE directors of the Worksop Gas Company have just declared a dividend at the rate of 7½ per cent. for the past year. In 1853 the company was charging seven shillings per 1,000 feet for the gas, and only able to afford a very insufficient supply. They determined on remodelling the works, which was effected under the superintendence of Mr. Gore, the engineer to the company. The result has been that they have been enabled to reduce the price of gas to 5s. 10d. per 1,000 feet, and yet pay an increased dividend. A further reduction to 5s. per 1,000 is about to be made. Since the reduction from 7s. to 5s. 10d. the consumption of gas has increased nearly 80 per cent.

THE ARCHITECTURAL MUSEUM,

IN THE GOVERNMENT MUSEUM AT BROMPTON.

As our readers already know, the Architectural Museum has been removed from the quaint dirty hole in Canon-row, Westminster, where it was first planted and grew. The old place had a charm of its own, and the new place is less convenient to some who used to frequent it. We are quite satisfied, however, that the committee did right to accept the offer when the Government proposed to provide the Institution with premises rent free, as it does the Royal, the Antiquarian, and other Societies. The difficulty found in raising sufficient money to meet the annual expenses and pay off the debt incurred on its first establishment; the failure of room; the coldness of the place in winter, which made study impossible; and the want of a good access to the collection, all weighed with the committee, and could lead to no other decision than that they came to. In its new home, the collection is better seen, can be studied during the whole year, and, through its connection with other collections, will be visited by a much larger number of persons than heretofore. The Institution retains its independent position as a private society, with all the original powers of direction and management, and with entire dependence, as before, upon the exertions of the committee, and the contributions of subscribers.*

The original intention of the founders was to form a nucleus of a National Museum of Architectural Art, "to supply that great and increasing want, now felt by the public, architects, artists, and art-workmen, of the means of referring to and studying the architectural art of past ages, and of those arts which have had their origin in architectural art." A large and increasing collection of casts and specimens has been already formed from the finest ancient examples, English and Foreign, of complete architectural works, arranged, as far as possible, in the order of their date; and of details, comprehending figures, animals, and foliage; mouldings, encaustic tiles, mural paintings, roof ornaments, rubbings of sepulchral brasses, stained glass, impressions from seals, and of all other objects of fine art connected with architecture; and it seems to us that Government should now take charge of the Institution, obtaining annually a grant for its increase and maintenance, and appointing the committee as a board of trustees for its management, with power to fill up vacancies. The Greek, Roman, and Renaissance casts belonging to the Department should be added to the collection and arranged in sequence.

The Museum is an admirable school for study. Every architect, and every architectural carver, should send his pupils there regularly to draw.

We are glad to observe that the general public, in passing through the Government buildings, manifest as much interest in the collection forming the Architectural Museum, as in any other, and stop in the gallery as long as they do elsewhere. During the week ending June 27, 6,041 persons in the day time, and 8,017 in the evening, being a total of 14,058, visited the Brompton buildings.

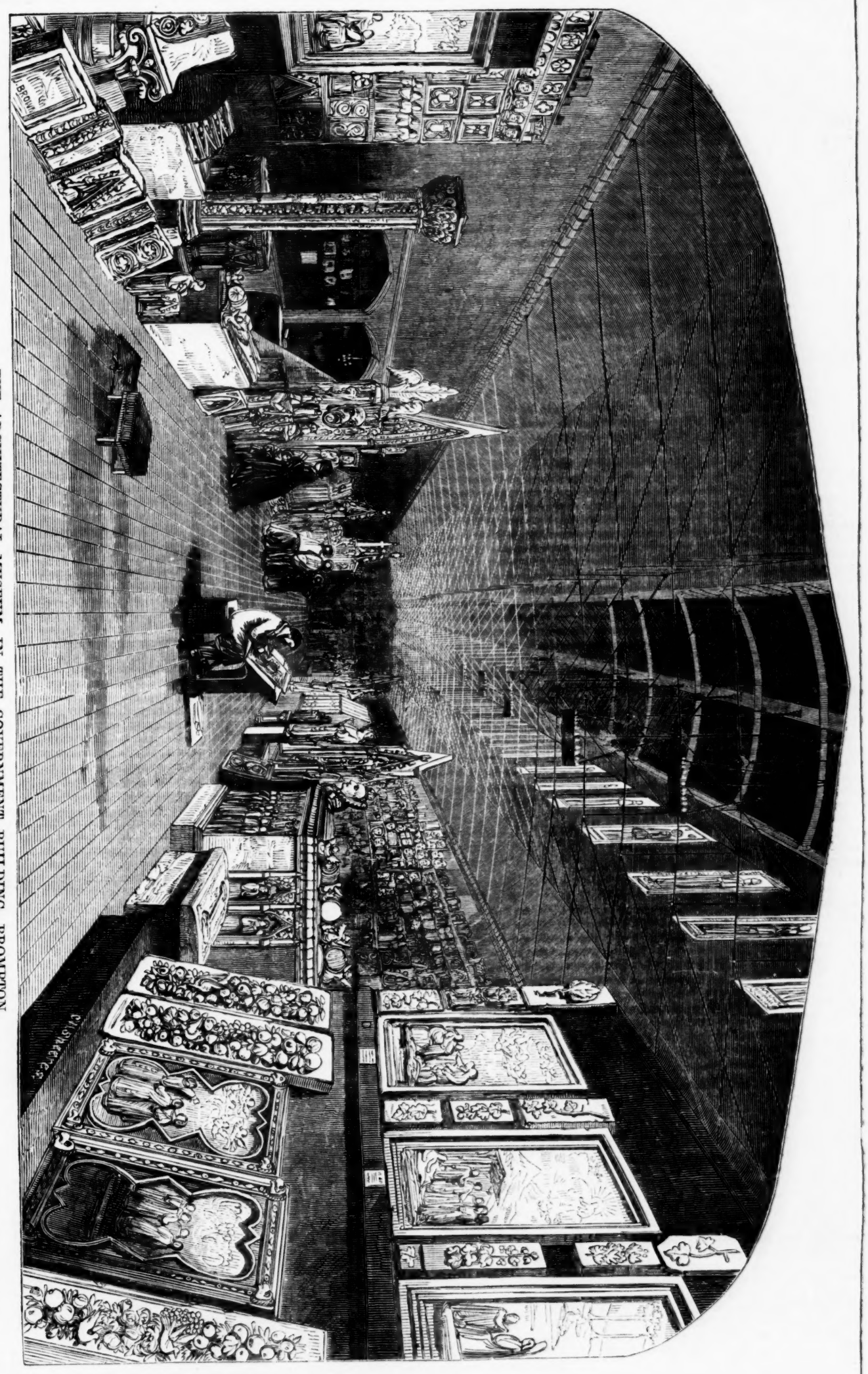
Our engraving represents the gallery viewed from the north end. On the right hand side, in the foreground, are bas reliefs from the south door of the Baptistery of Florence, cast in bronze (according to the inscription on the door), by Andrea Pisano, from a design by Giotto, in 1330, together with the competition panels, by Lorenzo Ghiberti, and Jacopo della Quercia, of Siena, for the New Testament gates of the Baptistery. The synopsis reminds visitors, that "the number of competitors for this work was seven, three Florentines and four Tuscans. Each artist received a sum of money, and it was commanded that within a year each should produce a story in bronze, as a specimen of his powers, all to be of the same size. The candidates for this work were Filippo di Ser Brunellesco, Donato, and Lorenzo di Bartoluccio, who were Florentines, with Jacopo della Quercia of Siena; Niccolo d'Azezzo, his disciple; Francesco di Valdambrina, and Simone da Colle. Lorenzo Ghiberti, whose work was unanimously pronounced the best, at that time was scarcely twenty years old. He was born in the year 1381, and died in 1455." Amongst the panels are hung some casts from natural leaves, with a view, on the curator's part, of showing how accurately nature had been followed in the foliage of the Ghiberti gates.

Beyond are seen the effigies, on an altar-tomb, of Talbot, Earl of Shrewsbury, his son, and wife.

On the left hand side of the gallery are other panels from the same gates, a clustered column from St. Alban's Abbey Church, seen in the engraving; the font from Patrickton Church, Yorkshire; and part of the effigy of King Edward II. from Gloucester Cathedral. Canopies from the monument of Bishop Acquabianca, Hereford Cathedral, and from the high altar-screen, St. Alban's Abbey Church, may be seen beyond.

The arrangement of the casts on the walls is now undergoing change, so that it would be useless to point out the present position of specimens. When completed, a plan, with numbered references to the casts, will be issued by the committee. All can draw there on the students' days without let or hindrance. Let us add, in conclusion, that the committee of the Architectural Museum are issuing cards of invitation for a *conversazione*, to be held in the Gallery, on Saturday next, the 18th inst. when the subscribers and friends of the Museum will be able to see the present aspect of the collection, to which we are seeking to draw increased attention.

* The following is a list of the present office-bearers:—PATRON.—His Royal Highness Prince Albert. PRESIDENT.—The Earl De Grey. TRUSTEES.—Sir Charles Barry, R.A.; Mr. Philip Hardwick, R.A.; and Mr. A. J. B. Beresford Hope, M.P. COMMITTEE.—Messrs. H. Austin (Cor. Mem.), C. Barry, Raphael Brandon, W. Burges, R. D. Chantrell, Ewan Christian, H. Clutton, Professor Cockerell, R.A.; W. C. Cocks, The Rev. Lord Alwyne Compton (Cor. Mem.), E. W. Cooke, A.R.A.; Professor Donaldson, B. Ferrey, M. A. Gerente (Cor. Mem.), John Gibson, Geo. Godwin, P. C. Hardwick, M. Rohde Hawkins, Sir Walter C. James, Bart.; The Rev. T. James (Cor. Mem.), H. E. Kendall, Jun.; J. L. Pearson, F. C. Penrose, The Rev. J. L. Petit, A. Salvin, G. Scharf, Jun.; Sir Francis E. Scott, Bart.; E. Sharpe (Cor. Mem.), Albert Way (Cor. Mem.), T. Willement, and T. H. Wyatt. TREASURER.—George Gilbert Scott, A.R.A. HONORARY SECRETARIES.—Mr. Joseph Clarke, and the Rev. Charles Boutell. ASSISTANT SECRETARY.—Mr. M. J. Lomax. AUDITORS.—Messrs. Ewan Christian and J. H. Hakewill. CURATOR.—Mr. C. Bruce Allen.



THE ARCHITECTURAL MUSEUM, IN THE GOVERNMENT BUILDING, BROMPTON.

CHURCH-BUILDING NEWS.

Mancroft.—About four or five years since, St. Peter's Church, Mancroft, was partially re-pewed, with open benches. It was hoped at the time that a sufficient amount would have been raised to get rid of the old high-backed pews throughout the church, but it was found that only the chancel could then be completed. At the parish feast in 1856, an additional subscription list was begun, and now the church has been finally re-opened. The new seats cost about 600*l.* The architect employed was Mr. Phipson, of London, and the carver, Mr. Ringham, of Ipswich.

Cheshunt (Herts).—A new Congregational Church was commenced here on the 12th of May, and the chief stone was laid on the 23rd ult. The site is in Crosbrook-street. The main building is so placed as to leave a forecourt and is 60 feet 9 in. by 40 feet, accommodating about 400 persons on the ground-floor, and 120 Sunday-school children in a gallery at the western end. The roof is of deal, stained and varnished, open to the ridge, ceiled on the back of the rafters; the ornamental arched trusses forming five bays in the length of the building. In the centre of each bay is a stone, single-light, pointed window, except in one on the south side, where a stone arched recess is provided for the organ. The seats are of deal, stained and varnished. The school-room forms the boundary in the rear, and is 38 feet 3 in. by 19 feet 6 in. with entrance lobby. Between the school-room and chapel there is also an infants' room, superintendent's room, and lavatory, and heating-room under the lobby. The style is Geometrical, and the front has a tower and spire 85 feet in height. The materials are stock bricks and Bath stone. The contract is taken at about 1,800*l.* which includes the value of the old materials. The architects are Messrs. Lander and Bedells, of London, and the builders are Messrs. Dove, Brothers.

Abingdon.—A vestry meeting for the parish of St. Helen was held on the 2nd inst. as to the restoration of the parish church, and more especially to consider the report of Mr. Street, the diocesan architect, who was employed in the repairs of the tower, which, according to his report, led to the disclosure of further defects which rendered it necessary for him to stop the work, and to recommend the taking down of the tower and steeple. Mr. Street and Mr. Wilkinson had both of them reported what, in their opinion, was necessary to be done to restore the tower and allay all alarms for the safety of the spire, but neither of them had then seen the necessity of taking it down. The views of the former gentleman were adopted by the committee, and, according to his specification, the repairs have recently been in progress by Mr. Walters, when, as reported by the architect, the removal of certain internal plastering disclosed certain cracks, and also that the walls were so insufficiently constructed that the repairs would be of little avail. The vestry was numerously attended, and some feeling was manifested against Mr. Street in consequence of his discovery, which led the vestry ultimately to resolve to refer the matter to Mr. Scott and Mr. Wilkinson, and a committee was appointed to communicate with these gentlemen on the subject.

Hulme.—The foundation-stone of the church of St. John the Baptist, Renshaw-street, Hulme, was laid on the 24th ult. The site is an oblong piece of ground, near the new schools built last year by subscription. The new structure will also be of an oblong form, with a tower and spire at the west end, fronting Renshaw-street, which, when completed, will be 192 feet in height. The style of architecture will be Gothic, of the time of Edward III. The upper part of the tower will have pinnacles, and ornamental windows and panels. The east end will be decorated with a large chancel window, the upper part of which will be filled in with ornamental pierced stonework. Internally, the church will present a range of six arches on either side, terminating in a slightly-raised chancel, at the east end. These arches will divide the body of the church into a nave and two side aisles. The roof of the nave will rise higher than that of the side aisles; with a range of small ornamental clerestory windows, giving additional light to the interior. The roof will consist of stained arched ribs; and the seats will be open benches. On the south side of the nave will be sittings for 327 persons. On the north side the pews will accommodate 328, free. The stone to be used in the building is the pierpoint wall stone, from Dunford-bridge, Yorkshire; together with ashlar dressings, from Peel Delph, in Lancashire. The cost of the building will be about 6,000*l.* The amount already raised is 4,000*l.* the greater portion of which, according to the *Manchester Courier*, has been contributed by Messrs. T. H. and H. Birley (of the firm of Charles Mackintosh and Co.). The site, which has been purchased of Mr. J. Renshaw, of Didsbury, will cost an additional 1,100*l.* The architect is Mr. E. H. Shellard, of Manchester; and the contractor, Mr. Mark Foggett.

Rawtenstall.—A new chapel, called the "Methodist Free Church," was opened on the 25th ult. The building is erected on an elevation above the railway, on the Haslingden road. The style is Corinthian. There is a portico similar to that of the Pantheon at Rome. The designs are by Mr. Robinson, of Rawtenstall, and the material used is ashlar stone. The contractor is Mr. Walter Sigley, of Ashton-under-Lyne. The woodwork of the interior is stained and varnished, and there is a gallery, supported by columns with Corinthian capitals. The pews are calculated to seat 1,000 persons.

Carlcoates (Yorkshire).—The new Church of St. Anne, at Carlcoates, Penistone, has been opened for Divine service. The edifice has been erected at the expense of Mr. John Chapman, late high sheriff of Cheshire, together with a parsonage-house and parochial schools, upon his estate at Carlcoates, in the West Riding. The "architect and builder" was Mr. George Shaw, of Saddleworth, to whom the restorations of the parish church of Ashton-under-Lyne have been intrusted, and which have cost upwards of 14,000*l.* The church at Carlcoates is a small Gothic stone structure, capable of accommodating about 300 sitters. All the windows are of stained glass. The east window is decorated, the subjects being St. Anne (the mother of the Virgin Mary), teaching the Virgin to read in her infancy; and the Virgin nursing the Saviour. The west window contains three subjects: the middle is the Crucifixion: one side compartment represents Jesus Blessing Little Children, and the other Blessing his Disciples, and bidding them preach the Gospel to all nations. There is a small Decorated window on each side of the communion-table, in which are the full-length effigies of the Evangelists. The chancel is occupied by eight stalls, intended for the use of the family of the founder.

Northleach.—The chancel of the parish church has recently been new roofed, under the direction of Mr. Knight, of Cheltenham, architect. The roof and upper portion of the walls had become much dilapidated by "time and the weather." The works were intrusted to Messrs. Mitchell, of Fairford, and Mr. Acock, of Cheltenham. It is in contemplation to replace the present heavy-looking screen, which does duty for a window at the east end, by a painted or stained-glass window, the framework, which is now filled up with bricks, being adapted for such a purpose. Want of funds alone, it is said, prevents this being at once carried into effect.

Escrick (near York).—The church of St. Helen's, the parish church of Escrick, has been rebuilt, and was consecrated on the 1st instant. The church is described in the *York Herald* to be of the curvilinear Gothic architecture, which prevailed in England about the year 1300. It consists of a large central aisle or nave, and one side aisle to the north. The chancel, which presents its front directly to the north road, is apsidal in its termination, and, in design, something like the east end of Lichfield Cathedral, or of Tewkesbury Abbey Church. On the north-eastern side, at the extremity of the north aisle, rises the tower, which is to be carried to the height of 100 feet. At the western extremity of the church is a multangular chapel, formed by a hexagonal centre, with a radiating aisle. It is built over the family vault of the late owners of Escrick-park, and has been erected at the sole expense of the Dowager Lady Wenlock. In the centre stands the font, so that this building is both a baptistery and mausoleum. The roof here is vaulted with stone, and upheld by pillars of red Devonshire marble, from Ipplepen, near Torquay. Marble is also used in the pillars of the nave, from the quarries near Plymouth, which have supplied the breakwater. The roof of the nave is formed with arched trussed ribs of fir, carried by angel corbels. The roof of the church is vaulted with oak. The general dimensions are, in the entire internal length, 121 feet; width of the nave, with its aisle, 38 feet, and the same for the height. The whole building is of stone, both inside and out, with a course of brickwork in the middle of the walls. The stone used for the rough walling is from Huddlestone, near Sherburn, in this neighbourhood, and Whitby stone is used at the ground line. But all the dressed stone has been brought from the Ancaster quarries, in Lincolnshire, conveyed in block from Grantham, and worked on the spot. There is an entrance into the church from under the tower, and on the south there is a porch which, in many old examples, has a chamber above it, here used as a vestry. The turret, which contains the spiral staircase leading up to the vestry, projects a little into the church, and forms a feature in the interior. A rose window at the west end of the nave, above the arch leading into the baptistery, and some small clerestory windows on the north side, are filled with stained glass by Messrs. Hardman, of Birmingham. This window was presented to the parish by the choir. There is also a window by Mr. Ward, of London, at the west end of the north aisle, given by the children of the national school. The chancel windows, which are at present plain, are to be filled with Bavarian glass. The floor of the church throughout is to be paved with Minton's tiles. All the seats are of oak; those of the chancel stalls of collegiate form. The gas standards and eagle lectern are hammerwork, by Skidmore, of Coventry. The bricks and a large portion of the oak timber used in the fabric were presented by Lord Wenlock. The organ is the work of Mr. G. M. Holdich, of London. It is placed under the tower, and opens into the chancel through an arch. The architect is Mr. Penrose, and the work (which has been done by measurement and valuation) has been executed by Messrs. Kirk and Parry, of Sleaford. The carving has been executed by Mr. H. A. Smith, of London. Some of the wood carving has been executed by Mr. Wolstenholme, of York. The clerk of the works was Mr. Frankham.

Bromfield.—The *Carlisle Journal* states that a church just erected at West Newton, in the parish of Bromfield, was consecrated on the 1st instant. Mr. John Todd, of Manchester, a native of West Newton, who had already put down his name as a large contributor to the endowment fund, took the entire expense of this building upon himself, as well as of a parsonage, schools, and master's house. The site was given by Mr. Jolliffe, lord of the manor; and the foundation-stone of the church was laid on the 11th of June last year. The church has been erected by the late Mr. John Walker, of Wigton. It is in the Early English style, and consists of chancel, and nave, with tower and spire. It will accommodate about 200 persons. At the west end is a memorial window, by Mr. Wailes, placed there by Mrs. Barwis, in memory of her daughter, and also of a friend. And in the south side of the chancel is another window by the same artist, placed by Mr. Todd, the founder, to the memory of his late wife. The east window is to be filled with stained glass as a memorial to Mr. Todd himself. The parsonage, which is in course of erection, will stand at a short distance on a site given by Mrs. Wosley, and will be built somewhat in the same style as the church, from designs by Mr. Hugall, of Cheltenham. The school and master's house are not yet commenced: they will be placed on the town green, by the side of the church, with which structure they are intended to harmonise.

PROVINCIAL NEWS.

Cambridge.—A public meeting was held in the Council Chamber of the Guildhall, last week, to consider the expediency of enlarging the town-hall, the necessity for increased accommodation for concerts, &c. having long been felt. Provided the object desired by the Public Rooms Company could not be attained, the prevailing opinion of the meeting was that the site of the town-hall was the most, if not the only, eligible one for the erection of public rooms of the description and size requisite. Several rough plans for a new building, presented by Mr. Wetenhall, were laid upon the table. A general committee, comprising the gentlemen present, was constituted; and a sub-committee was appointed to draw up a memorial to the council, and take such other steps as were deemed necessary.

Banbury.—Many parts of this town having long felt the great want of a water supply, about three years ago it was proposed to establish waterworks, and a prospectus of the formation of a company for that purpose was issued. Much beyond that step, and obtaining plans, the promoters did not at that time proceed; but, as the necessity for its operations increased rather than lessened, it has not been forgotten, and it is now proposed to raise capital in shares, and already considerable sums have been thus invested. The water will be drawn from the Cherwell, near to Grimsbury Mill, where land for the purpose has been secured, and where the requisite buildings, with steam pumps and filtering beds, will be erected. Thence the water will be pumped to the highest place within a mile of Banbury, from which the town can readily be supplied by gravitation.

Hemel Hempstead (Herts).—This town, in common with many others, has for some time past felt the want of a corn-exchange commensurate with the requirements of an increasing and important trade in grain and farming produce. The market is entirely freed under a charter of incorporation granted by Henry VIII. and has, until recently, been held in the open space under the new town-hall, which was constructed specially with that view. The attendants of the market have suffered so severely from constant exposure to the weather, that the present high bailiff determined upon enclosing the under part of the town-hall, which has been carried out, and a commodious and well-lighted room formed, 50 feet long, and 25 feet wide, from the designs, and under the directions of Mr. George Low, of London, architect, who erected the present town-hall, in 1851. Mr. Sear, of Hemel Hempstead, was the contractor. The

exchange was formally opened and inaugurated on the 19th ult.

Hertford.—The town council have resolved to memorialize the Lords of the Treasury for powers to borrow the sum of 600*l.* for the improvement of the corn-exchange at Hertford. Mr. Evans is the architect whose plans have been accepted. The alterations now to be carried out in the corn-exchange will, at same time, adapt it to the uses of the public library.

Croydon.—It has been resolved to erect a public lecture-hall here, and for that purpose a company, on limited liability principles, has been formed. The Croydon Literary and Scientific Institution alone has an income of 270*l.* and upwards, and would make use of the hall, paying a rental. There is also a Temperance Society. It is considered that 3,000*l.* will be sufficient, and that a return of 150*l.* a year in rental should suffice to remunerate the company for their outlay.

Tenbury (Worcestershire).—It has been determined by the inhabitants of Tenbury to pull down the present dilapidated and badly arranged poultry and butter market, and to erect a new building on the present site, increasing it in size as much as necessary. Mr. Cranston, of Birmingham, is engaged by the committee to design and carry out the work.——A joint-stock company has been formed here, for the purpose of purchasing a large lot of badly occupied property, in Teme-street, called Robinson's-court, and erecting a town-hall and corn-exchange, with rooms for county-court purposes, and for magistrates' meetings, &c. The necessary plans have been prepared by the architect just named.

Rugby.—The foundation-stone of a new town-hall was laid here on the 22nd ult.

Bawtry.—The first stone of an infant-school has been laid at Bawtry. It will be in the Elizabethan style, and 30 feet by 16 feet, on a plan provided by Mr. J. G. Weightman, of Sheffield, architect. Mr. Howard, of Bawtry, is the contractor, and the cost of erection will be 345*l.*

Dunbar.—Long-projected improvements upon this harbour are now about to be carried into effect. The Treasury are said to be prepared to sanction an outlay of 30,000*l.* towards carrying out the improvements and alterations on the Victoria Harbour, agreeably to plans which the local magistrates have laid before them. The harbour will then be capable of admitting vessels and boats at low water, by which shelter will be obtained by them at all times, instead of running for the Firth of Forth in a storm.

Montrose.—At a recent meeting of the local council, reported in the *Montrose Review*, the clerk stated that he had received several tenders for the building of the new markets, according to the plans by Mr. Mathews, of Aberdeen, and Mr. Moffat, of Edinburgh; but the lowest was considerably above the highest sum fixed by the council,—the lowest, according to Mr. Mathews's plan, being 1,441*l.* 17s. and according to Mr. Moffat's plan, 1,823*l.* 7s. 6d.; whilst the highest, according to the former, was 1,937*l.* 3s. 4d. and to the latter, 2,089*l.* 5s.

CORPORATION WORKS IN LIVERPOOL.

WE glean the following items from the evidence of Mr. Shuttleworth, before the committee on the Mersey Conservancy and Docks Bill:—

In 1829 the corporation built a lighthouse near New Brighton, at a cost of 30,000*l.* The corporation, about fifteen years since, erected a machine on their own land for testing chain cables, at a cost of 11,144*l.* A small charge was made, but not equivalent to the cost of maintaining it, and the average deficit was 100*l.* a year. Mr. Shuttleworth stated some of the causes which led to the erection of St. George's Hall. On Lancashire being divided into two portions, for assize purposes, the corporation undertook to provide courts in their session-house, and also lodgings for the judges. The session-house for a considerable period was inadequate, but the corporation refused to erect a new court whilst their right to the town-dues was in dispute. Other parties were desirous of erecting a music-hall, and the result was, that the corporation undertook to erect the St. George's Hall at their own expense. The original architect was Mr. Elmes, now deceased. The estimate was 90,000*l.* but it had been largely exceeded, and 200,000*l.* had now been expended. The corporation also constructed a landing-stage used by sea-going steamers, at a cost of 5,157*l.*: it was several years constructing, and was opened about fifteen or sixteen years since: its annual charge was 927*l.* A representation had since been made that it was insufficient, and a new stage, 1,000 feet long, was now constructing, and nearly finished, at a cost of 130,000*l.* The money had been borrowed, and would be repaid by a sinking fund of 2,600*l.* a year, whilst its annual cost would be 6,000*l.* In 1840 the corporation gave and for a Sailors' Home, and Sailors' Savings' Bank, estimated to be worth 8,500*l.* In the same year they commenced the construction of a new observatory. The cost of the building and instruments was 10,342*l.* It was maintained at considerable cost, and though a small sum was received for rating chronometers, the expense exceeded the income by 600*l.* a year.

TEWKESBURY.

TEWKESBURY, situate, as most of your readers know, about 15 miles south of Worcester, is a very pretty town, possessing long and spacious streets, the modern dwellings picturesquely diversified by those timber-fronted houses which are fast disappearing. Most of these retain unaltered the original windows, or, to speak more properly, the continued window, extending along the whole front. The great attraction, however, of Tewkesbury, is the fine old Abbey Church, a mitred abbey, pronounced by some archæologists to be now the finest parish church in the kingdom. The pier arches of the nave are borne on those enormous cylinders (here 20 feet in circumference), which are usually supposed to indicate an early stage of Norman architecture in England, and yet the mouldings of the comparatively diminutive round arches they carry do not seem consistent with a very remote origin. The extreme disproportion of these arches to the heights of their supports struck me as radically inelegant. There are no sculptured capitals, but an abacus with plain mouldings beneath; and it is somewhat difficult to separate with precision the two members. Above are a curious little ambulatory, which from its position we must call triforium; little round arched openings in couples; and at top the clerestory windows, round-headed, but now divided by mullions of perhaps the fourteenth century. These upper stories are insignificant, the relative proportions between the different stages of the elevation essential to pleasing effect being quite destroyed by the undue importance given to the ground story. The vaulted stone roof (with pointed pier ribs) appears at first sight somewhat complicated in construction, from the number of ribs which intersect and cover it; but I suspect many of these to be merely *applied*, that is, surface ribs, for I could not satisfy myself that there existed a groin behind every rib. It is considerably lower than the original roof, the tops of the clerestory windows now rising above it some feet. Its former elevation is distinctly marked outside on the central tower. The piers of this choir (this ends in a polygonal apse), though lower, are proportionately as bulky as those of the nave, and denote at least as early a date; but the pointed arches they carry are of Decorated design, though meagre and ineffective. The windows of this portion of the edifice are of the style last mentioned, but the tracery is poor. The stained glass is very pleasing. The vaulted stone roof is rich and complicated, and the bosses at every intersection of the ribs are most of them of merit. The choir-aisle, with the chapels opening upon it, recalls the arrangement of the French churches. The ball-flower ornament is extensively used in this part of the church, and very well worked. There is an inexhaustible fund of interest in the tombs contained in this edifice, most of them of great merit, and some exhibiting singular grace and elegance in general design and detail. I will, however, only briefly refer to those which most struck myself. The most beautiful, I should say, is the one erected to the memory of a member of the De Spenser family, said to have been the next lineal descendant of that De Spenser, the favourite of Edward II. beheaded (I think) in the courtyard of Warwick Castle. This rises pyramidally in most exquisite proportions, in three graduated stages of open work arches, pinnacles, canopies, &c. Though totally different in detail, it called to my mind the tomb of the Scaligeri, at Verona. There is a second one much resembling this, and perhaps equally worthy of praise; and a third raised to the memory of a warrior who fell at Tewkesbury fight, in 1461. The recumbent effigy of the gallant knight is, however, clothed in armour, of a century earlier. The Sedilia must not be overlooked, an admirable example of this appendage of a church of the Decorated era. The triangular canopies over each seat have been wilfully mutilated. The original colouring, within and without, is very well preserved, in which predominate vermillion and green. Behind the apsidal termination, there exists (though now shut out from the church), the Lady Chapel of the Early Pointed era. It is now used as a grammar school: the floor has been raised some yards; the bases and a great part of the vaulting piers hidden, and the proportions utterly marred. I have omitted to notice a singularity of construction to be found in the choir. Behind each pier arch is constructed a second arch, or what purpose I could not satisfy myself, which at first sight I felt confident must have been an afterthought of the architect. On a closer examination, this opinion was somewhat shaken by the identity in section of the mouldings of the two arches. Can the addition have been rendered necessary by some change introduced in the roof of the choir aisle? I know some examples of this practice in continental churches.

The central tower is Norman, too low and broad to possess any claim to elegance; and it is not until a near approach that you become aware that the detail is very good, and in some parts almost delicate. The panelling of the stages exhibits some rather singular features, and the chevron, in all its forms and varieties, is abundantly employed. The west front is, so far as I know, unique in its arrangement, striking from its singularity rather than its beauty. The whole height and breadth are filled up with one large circular arch, formed of six recessed rolls, resting on as many shafts, in square recesses. At top is opened the window, the present one an insertion of a date somewhat later than the beginning of the seventeenth century, and below, the doorway also comparatively modern. I never saw an arrangement which appeared to me so destitute of grace. There is, however, one part of this front of great interest. At the corners stand little solid square turrets, having each angle concealed by a cylinder, capped with a cone, and from the midst of the four rises a taller cone—*a nascent spire*. All about these is undoubtedly original (with the exception of added finials), and the arrangement strengthened an impression which I have long entertained, that the noblest external feature of a sacred edifice, the spire, had entered into the conceptions of the men who flourished before the adoption of the Pointed style, though the glory of fully developing the idea was reserved for their successors; and that the Romanesque builders have full claim to the merit of which some would deprive them by maintaining that the spires surmounting certain Romanesque towers in France (I would instance those of *Basse Allemayne*, *Montivilliers*, near Havre, and *Cunault*, on the Loire), were additions and improvements not contemplated by those who raised the substructure. No one can deny that we have here in charming simplicity the elements of the most beautiful features of our Early Pointed churches; their light and elegant open turrets, their tapering pinnacles, and their crowning glory, the heaven-directed spire.

VIATOR.

DICK'S LIFE-PRESERVING AND VENTILATING SASHES.

AN arrangement to obviate the risk of life in painting, glazing, or cleaning windows from the outside, as is now the case, has long been desired, and has led to many inventions more or less applicable. By the mode patented by Mr. Dick, all this may be done by the person inside, without moving from the floor: the sash may be turned upside down, or allowed to lie flat, as found most convenient. The sashes can likewise be removed from the frame with the greatest ease, without the inconvenience of removing the beads, to have new cords attached, or taken out altogether, to admit any large piece of furniture without removing the cords from their place. It likewise affords a safe means of ventilation, by bringing the top sash down a little, and allowing the top of the bottom sash to incline a little into the room; by these means forming a ventilator, admitting the cold air at the middle of the window, and allowing the hot air to escape at the top. Individuals sitting in the room are not exposed to the draught. It is applicable to old sashes equally as to new. The arrangement consists in cutting down the sash on each side, in a line with the face of the parting bead: the joint is made watertight, and the sash is hung by a strong attachment to the bottom of the slip, thus cut off, so that when released at the top, where a catch secures it, it can be turned over into the room. The increase in the cost is but trifling.

BRONZE CASTING AND POLISHING.

I BELIEVE an inquiry has been made in your Journal more than once, as to the material and mode of polishing and working the surface of works in bronze. The following extract from Father Marchese's "Lives of the most eminent Painters, Sculptors, &c. of the Order of St. Dominic," translated by Meehan, may supply some information on this subject:—"Portigiani, temp. 1550, the man who in his time was second to none in the difficult art of casting in bronze,—the man who assisted the celebrated sculptor, Gian. Bologna,—whilst in the convent S. Marco, Florence, resumed from time to time his early habit of modelling and casting in bronze, and executed various works, most diligently and excellently; and as the memoirs of the convent inform us, cast fountains, statues, bells, candelabra, and all sorts of domestic utensils. These memoirs know no limits to praise, when speaking of the wonderful polish which he knew how to give to the various descriptions of bronze ornaments; and every one acquainted with the arts of design must be aware what diligence and skill a

man must possess before he acquires distinction in this particular branch. In fact, after making the cast, an artist of this sort must know how to ply the burin, the chisel, and the rasp, giving relief to the composition whenever necessary, and the most elaborate smoothness to the surface. This, we need scarcely say, is finally accomplished with the rasp and pumicestone. As to the colouring, the agencies usually employed are, oil, vinegar, and varnish, according to the tint which the artist desires to give to the bronze, which is generally coloured black or green. Requirements such as these will convince us, that a bronze-caster must possess singular skill and practice before his work can appear in its integrity and purity; and it should be borne in mind, that Ghiberti employed the most distinguished sculptors and goldsmiths of Florence to help him in polishing the bronze gates of S. Giovanni, before they were hung on their hinges."—*Vol.* 2. F. L.

CAMBRIDGE BARRACKS, PORTSMOUTH.

SOME of the additional ranges of building are now in progress here to form quarters for forty-four officers. In length the additional range is somewhat more than 361 feet. The brickwork is of white bricks, from Beaulieu: the dressings, centres, gateway, and cornices are of Portland stone. The carving, in the Royal arms surmounting the cornice, is a work of considerable cost. The new wing to the soldiers' barracks, in the rear of the parade-ground, will afford accommodation for above 1,020 men, and is of red brickwork, with Beaulieu brick dressings: the out-offices cover a large extent of ground, and will conduce much to the health and comfort of the men. The school-rooms and library in connection with the additions will shortly be commenced. The drainage is being carried into the sea below low-water mark, and passes under the fortifications, lunette, reservoirs, and parades. The whole substrata being under tidal influence makes this a difficult work: one of the land springs crossed in excavating for this work yielded about 700 gallons of water per minute, which was raised by a centrifugal pump. The time stipulated for completing the original contract, which was taken by Messrs. Lee and Lavers, of Belvidere-road, Lambeth, at 32,700*l.* was the 30th November next. The foundation-stone was laid on the 20th June last, and the buildings will be completed about the end of July. The work is being executed under the superintendence of Mr. Hawken, of the Royal Engineer Office. The mess-room is 61 feet by 26 feet; fencing-room, 34 feet 4 inches, by 37 feet. The design is so arranged that the commanding and field officers will have a suite of rooms with separate entrances. The architect is Mr. R. O. Mennie.

THE ORGAN IN ST. PAUL'S CATHEDRAL.

I READ in the *Builder* some time since a not very dignified complaint on the part of "An Amateur," against the fine old organ in St. Paul's Cathedral. Feeling interested in the dissemination of truth as opposed to ill-founded and mistaken prejudices, I forwarded the article to a gentleman connected with the cathedral, who, I perceive, has treated its author with silent and perhaps well-merited neglect, and, in fact, "let him alone most severely." To any one moderately acquainted with organ matters, it would surely be known how universally Schmidt's organs are prized, on account of the beauty of tone, which, if it can be equalled, certainly cannot be surpassed by the cleverest artificers of the present day. As to Schmidt's being an "unknown workman," it is sufficient to remark, that the work of re-erecting the organs throughout the country subsequent to the Restoration was shared between him and his rival, Harris, while Dr. Burney* (a sufficient authority even "An Amateur" must admit) has left on record, in eulogy of Schmidt, a most unequivocal testimony to his talents as a workman:—"The number of organs built and enriched with new stops by Father Schmidt is prodigious, and their fame equal to that of the pictures of Raffaelle: a single stop known to be of his workmanship is still invaluable," &c. So much for Schmidt's being a little known or unskilful workman. As to the organ in St. Paul's being "an outrageous machine!" I can only say that for many years it has been found, in the opinion of those who know best, amply sufficient for the choral service of the Church of England, which does *not* require an organ uniting the size of six, and the noise of half a dozen brass bands. I saw nothing "outrageous" when last I played upon it, a pleasure (*non obstante amateur*) of which I have yet a vivid recollection. At the same time a venerable instrument, over which nearly 200 years have passed, cannot, however improved, be expected to display all the mechanical appliances and comforts of a new one. A CHURCHMAN.

* Hist. Mus. iii. 439.

PRACTICAL PROBLEMS.

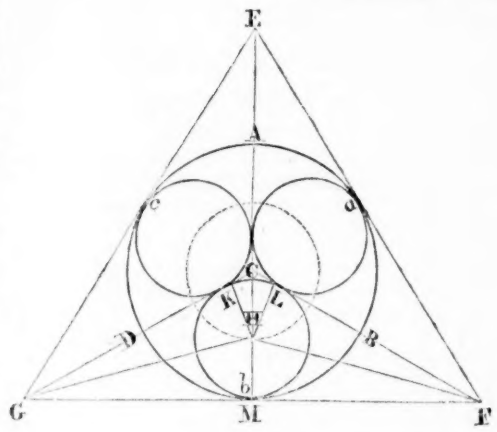


Fig. 1.

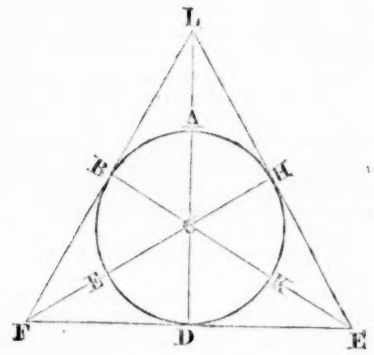


Fig. 2.

To describe the figure of a Model, for a cast-iron Casement, of the form of a Circle, circumscribing three equal Circles touching each other and the circumscribing Circle. (Fig. 1.)

TAKE any point C, and from the centre C, at the distance CA, equal to the radius of the given circle, describe the circle ABD; divide the circle ABD into three equal sectors, CAB, CBD, CDA, and bisect their arcs in the points, *a*, *b*, *c*; draw the straight lines EF, FG, GE, touching the circle ABD at the points *a*, *b*, *c*; produce the straight lines CA, CB, CD, to meet these tangents in the points E, F, G, making the three equal triangles CEF, CFG, CGE; bisect the angles, CGF, CFG, at the base of any of these equal triangles, CFG, by the straight lines GH, FH, meeting one another in H; and from the point H draw the straight lines HK, HL, HM, perpendicular to the sides CG, CF, FG, of the triangle CFG. Then (Euc. bk. 4, prop. 4), the straight lines HK, HL, HM are equal to one another, and the circle described from the centre H, at the distance of any one of them, will pass through the extremities of the other two: and because the angles at K, L, M, are right angles, each side of the triangle CFG will touch the circle; the circle KLM is, therefore, inscribed in the triangle CFG. The same construction being made, equal circles may be inscribed in the other two equal triangles touching each other, the circumscribing circle, and the first inscribed circle, KLM.

Note.—The radius of any of the equal inscribed circles may be expressed by the term $mr \tan. \frac{\pi}{3}$.

For let m represent tan. $\angle$ HGM; $HM = m\,GM$;

$$GM = CM. \tan. \angle GCM = r \tan. \frac{\pi}{3};$$

$\therefore$ HM (the radius of the circle KLM) $= mr \tan. \frac{\pi}{3}$;

i.e., $r' = mr \tan. \frac{\pi}{3}$, if r' and r be taken to denote the radii of the inscribed and circumscribed circles respectively. Also $mr \tan. \frac{\pi}{n}$ will be the general expression for the common radius of any of n equal circles, inscribed in a circle, touching each other, and the circle in which they are inscribed.

For the same purpose, it is required to describe an equilateral Triangle about a given Circle. (Fig. 2.)

Find C the centre of the circle ABD, and draw the diameter AD; trisect the semicircumference ABD in the points B, E, and join CB, CE; draw the straight line FG, touching the circle at the point D; produce BC, EC through C, to meet the circumference in H, K, and CE, CK to meet the tangent FG, in the points F, G; and through the points B, H, draw tangents LF, LG, meeting each other in the point L, and the straight FG in F and G. The triangle LFG is equilateral, and it is described about the circle ABD.

Cor.—Since the straight lines CB, CD, CH, are radii of the circle ABD, and perpendicular to the sides LF, FG, GL, of the triangle LFG, it is obvious that the area of the triangle LFG is equal to the rectangle under the radius of the inscribed circle, and the semiperimeter of the triangle LFG; and, by reference to the construction of the general case (Euc. bk. 4, prop. 3), the same may be predicated of any triangle described about a circle.

Note.—The equilateral triangle can be shown to have the *least* area of any triangle described about a given circle, and the *greatest* area of any triangle inscribed in a given circle.

Cambridge. A. J. TOMPKINS.

DECISIONS UNDER METROPOLITAN BUILDING ACT.

Projecting Closets on Brackets.—At Marlborough-street Police-court, on the 30th of June, Messrs. Duncanson and Moultrie were summoned before Mr. Beadon, by the district surveyor for South Marylebone, for an alleged infringement of the Building Act in a house, No. 74, Great Titchfield-street.

Plans were produced, from which it appeared that the defendants had removed a staircase window, and had thrown out a water-closet at the back of their premises, which addition rested on brackets. It was contended, under the 9th section of the Act, that the projection should be deemed an alteration or addition, and that such addition, according to the first schedule, should have the walls constructed of brick or stone resting on concrete.

It was admitted that the projection in question did not rest on solid ground or concrete, but was supported by brackets attached to the wall. The water-closet was of 1-inch slate, supported on a slate landing. One side of the closet extended over the line of the party-wall.

Mr. Roberts, architect, for the defendants, contended that such projections were never intended to be included in the Act, which had specially excepted balconies and verandahs, and therefore intended to except all projections of a similar nature: that a balcony was the foundation of the closet: that as an architectural projection, it was not contrary to the Act; but that, at all events, it was an enclosed virandah, in which, at the time this summons was taken out, there was no seat or woodwork of any kind. Under the 26th section, he contended that the defendants were entitled to have the summons dismissed.

A long legal argument ensued between the parties, at the conclusion of which—

The magistrate said he did not think himself bound to make any order to take it down, but did not express any opinion on the various questions raised.

SIR,—I have just read in the papers the judicial decision of Mr. Beadon, in the case of a closet thrown out on brackets, by Messrs. Duncanson and Co. Titchfield-street, under the Building Act, and I confess myself much surprised at the decision. I do not observe it stated how the sides are built, whether of timber or brick, or whether the brackets which support it are wood or iron; but in either case it seems to me to set at nought one of the most important provisions of the Act. Balconies and verandahs are well-understood terms, and assumed to be open, but by what stretch of language can a water-closet, which is of course enclosed and covered, be called by either name? Is it because it has an apparatus?—if so, what is it, if it is a store closet of the same size, and of course without that appendage? Is it because it is presumed to be only some 3 feet by 5 feet?—if so, what is it if it be double or treble that size? What is and where is the limit to be fixed? The existence of these conveniences "on brackets" was so well known and understood that, had the Legislature intended to allow them, it seems hardly possible they could have been forgotten and overlooked. One similar to this, but with quartered sides, has since the last Act been erected within view of my windows. Of what use is a brick-back front, as a protection against fire, with this lath and plaster construction projecting to invite the flames? INVESTIGATOR.

Ruinous Buildings.—At the Westminster Police-court, on the 2nd instant, Mr. Reeve attended to apply for a summons in order to have the premises, known as the Gun Tavern, Pimlico, which are in a dilapidated state, rendered secure.

Mr. Arnold.—To whom does the property belong?

Mr. Reeve.—It belongs to the Crown.

Mr. Arnold.—Then I cannot act. The Crown, as a general rule in law, is not bound by any order I may issue.

Mr. Reeve referred to the Act, and said that he thought there were clauses in it by which the Crown would be liable to the process of a summons.

Mr. Arnold.—Suppose the Crown refuse. Did you

ever know of an instance of an application against the Crown being granted?

Mr. Reeve explained, that if a summons were granted, and were not acted on, the Commissioners of Police would proceed to protect the premises, and recover the expenses from the owner.

Mr. Arnold observed, that the better course would be to give notice to the Office of Works that application was made for the summons, and to adjourn the application to a future day, so that they might have an opportunity of attending.

Ruinous Buildings.—Having on one or two occasions lately been professionally engaged in estimating damages to houses that have been seriously injured by adjoining houses having been pulled down in default of proper and sufficient shoring having been *first* affixed, I wish to call public attention to the fact that, where property is injured by ignorant or careless builders, in such cases a remedy at common law exists. In nine cases out of ten, houses at the present time are seriously endangered by the adjoining ones being pulled down in the absence of proper shoring. A SURVEYOR.

METROPOLITAN BOARD OF WORKS.

AT the usual weekly meeting of the Board, on Friday last, a number of applications were received and considered relative to buildings under the Act. Although possessing little interest for any but the parties concerned, we may for once give a list of them, with the decisions of the Board, to show the class of applications which comes before them :—

Regular Line of Buildings under Local Management Act, sec. 143.

Newington, &c.—Shops at Nos. 1 and 2, Gloucester-place, East-lane, Walworth. From Mr. George Hammond, for consent. Approved.

Islington.—Brewery in Seven Sisters'-road, Holloway. From Mr. Charles Barlow, architect, on behalf of Mr. Thomas Whitaker, for consent. Approved.

Lambeth.—Four Houses and Shops, Nos. 8 to 11, Loughborough-place, Brixton. From Mr. John Johnson, architect, for consent. Approved.

St. Pancras.—Addition to House, No. 33, Fitzroy-terrace, New-road. From Mr. Richard Richardson, on behalf of Mr. William Squire, for consent. Approved.

St. George, Hanover-square. — Shop at No. 50, Park-street, Grosvenor-square. From Mr. Edward Darby, for consent. Approved.

Projections under Building Act, sec. 26, *and Buildings under Local Management Act, sec.* 143.

Lee.—Coachhouse and Portico at No. 2, Cornwall-terrace. From Mr. George Legg, architect, on behalf of W. Brown, esq. for consent. Portico only granted.

St. Marylebone.—Balconies to No. 62, Harley-street, Cavendish-square. From Messrs. Hind and Alldred, for consent. Approved.

Woolwich. — Bow window to house, No. 29, Francis-street. From Mr. Henry Bland, for consent. Approved.

Stoke Newington.—Eaves to Mr. Porter's House, Park-road. From Mr. J. Pope, for approval. Approved.

Buildings under Building Act, sec. 56.

Bermondsey.—Stables and shed at Cole's wharf, Shad Thames, St. John, Horselydown. From Mr. W. A. Boulnois, architect, on behalf of Messrs. Bovill and Sons, for consent. Approved.

Kensington.—Furnace chimney-shaft for flour-mill, at rear of Nos. 1 and 2, High-street, Notting-hill. From Mr. William Mumford, architect, on behalf of Mr. Brewer, for approval. Approved.

Paddington.—Furnace chimney-shaft, at No. 4, Irongate wharf. From Mr. Robert Greig, on behalf of the London General Omnibus Company, for approval. Approved.

Bethnal-green.—Furnace chimney-shaft, at Victoria Works, Green-street. From Messrs. Palmer and Co. for approval. Approved.

Limehouse.—Furnace chimney-shaft, at Messrs. Walker, Taylor, and Co.'s brewery. From Messrs. Morcland, for approval. Approved.

Lambeth.—Furnace chimney, at Mr. Stiff's premises, Broad-street. From Mr. Stiff, for approval. Approved.

Lambeth.—Furnace chimney, at Messrs. Sowerby's premises, Broad-street. From Mr. William Wills, for approval. Granted with conditions.

Kensington.—King's Arms Tavern, temporary wooden building. From Mr. George Hunt, on behalf of Mr. Martin, for approval. Approved.

Proposed Offices for the Strand District.

On an application from the Board of Works of the Strand District, relative to borrowing the sum of 4,000*l.* for the purpose of erecting an office for the district, Mr. Marrable, the superintending architect, reported that he had examined the drawings that had been prepared by the surveyor of the Strand district, and was of opinion that the contemplated works could not be properly executed at a less cost than 3,900*l.*

CANADA.

THE following tenders were delivered for additional buildings to the Osgoode Hall, in Toronto, for the Law Society of Upper Canada, according to the designs of Messrs. Cumberland and Storm, architects to the society.

	Excavator, Bricklayer, Mason, and Stonecutter.	Carpenter, Joiner, Smith, Founder, and Plumber.	Plasterer.	Glazier and Painter.
	£ s.	£ s	£ s.	£ s.
Worthington, Bros.	15,229 0			
Benjamin Walton*	13,571 0			
W. H. Pym	.....	9,093 0		
Thomas Storm	.....	8,722 0		
George Netting	.....	8,492 0		
Jacques and Hay*	.....	7,728 0		
T. Reddan	.....	.....	2,524 0	
J. Loftus	.....	.....	2,390 10	
J. Foster	.....	.....	2,195 0	
Hynes, Bros.*	.....	.....	2,070 0	
J. Carr	.....	.....	.....	2,300 0
A. Hamilton*	.....	.....	.....	2,097 0

* Accepted.

The plastering of the library (estimated to cost about 1,800*l.*) is not included in the above.

The sum of 2,250*l.* has to be added to the stonecutter's tender for the execution in Caen stone of the arcade in the centre-hall.

ARTIFICIAL MARBLES.

AN Italian correspondent has sent to the *Athenæum* some notes on a new process for the manufacture of artificial marbles, invented by the Marchesi Campana. He says, "The Fabri is at San Giovanni, *en route* to Portici. In a large chamber, I found specimens of various species of the marble worked into tables, vases, pedestals, and cornices. Porphyry, rosso antico, giallo antico, brocatello, and other marbles, were there: so the eye declared, and neither myself nor nor my friends could have distinguished between them and the real marbles. They were marked by the same 'ring' on striking them, by the same appearance in the internal formation, and by the same high polish on the surface. In fact, we were witnesses of the mode of polishing adopted, which resembled exactly that used for marbles, that is to say, pumice-stone and water in the first instance, and a hard, cross-grained stone, here called 'lavagna,' after. Adjoining the fabric, we were shown the roof of a house which had been covered with this material, and had resisted the heat of two summers and the cold and frost of two winters; yet not the slightest impression had been made by either. * * * As yet only two fabrics [of these marbles] exist—one in Rome and the other in Naples. In London, an imitation has been attempted; but it is limited in its range, not embracing any other varieties than porphyry, giallo antico, and rosso antico, and it is nothing more than a plaster laid over a hard stone, such as lavagna, whereas the Marmoridea is one solid substance."

A patent has just been taken out by Mr. John Baker, of Thirsk, on behalf of a Canadian relative of his (Mr. J. H. Headley, of Walpole), for plating or veneering a mass of coarse stone so as to present an exterior coat of marble. For the substratum, sand, gravel, or almost any kind of pulverable, mainly silicious, rock may be employed. After the particles of this have been reduced to the requisite degree of tenacity, the mass is mixed with protoxide of calcium. When amalgamated, the mass is moistened, then placed in a mould to be coated with carbonate of lime, and afterwards subjected to powerful hydraulic pressure. Mr. Headley thus imitates the qualities and varieties of different kinds of marble. He has employed oxide of iron largely as a colouring material, and finds that by silicate of potash extra hardness is given to the block, which renders it susceptible of a high degree of polish. The patent right has been sold in eight counties for 12,000*l.* Messrs. Peto and Brassey have paid 4,000*l.* it is said, for a license to use it in the construction of the bridges of the Grand Trunk Railway.

SCHOOL OF ART FOR IPSWICH. — Measures are being taken towards the formation of a school of art in Ipswich, and, according to the Rev. W. Campbell, one of Her Majesty's Inspectors of Schools, there is a fair prospect of support from the public and private schools of the town. A public meeting will probably be called shortly for the purpose of founding the school.

THE DEPARTMENT OF SCIENCE AND ART.

THE fourth report of the Department of Science and Art, for the year ending December 31st, 1856, has been published. It commences by alluding to the transfer of the Department from the Board of Trade to the Board of Education, by order in council; and proceeds to consider the various services over which it has control, including metropolitan institutions, secondary instruction, primary instruction, formation of examples, and public services.

The institution and service in London are the Geological Survey, Mining Record Office, School of Mines, Museum of Practical Geology, Training School of Art, Female School of Art, Museum of Ornamental Art, circulating museum and circulating art-library. Of the geological survey of Great Britain, maps embracing an area of 2,357 square miles have been published, while others, comprising 996 square miles, are about to be issued. In Ireland, 1,604 square miles have been surveyed; but an unavoidable delay has prevented the issue of a corresponding portion of the maps. That the public begins to appreciate the value of these maps is proved by the fact that the sale of maps during the past nine months has doubled that of any preceding year. The Mining Record Office continues to gather much useful information, and during the past year 146 plans and sections of mines have been deposited in the office, besides a mass of valuable statistical documents. A slight falling off in the attendance of the students of the School of Mines is shown, while the lectures to working men have been eminently successful. The laboratories of the school are fully taken advantage of by the public, and papers of original researches in the laboratory continue to be published. The number of visitors to the Geological Museum is 20,415 for 1856, being an increase of 7,360 over the previous year.

The total number of teachers in training in the Normal Training School of Art has been 106, of whom seventeen were females. Thirty-seven took certificates during the year, and twenty-one have been appointed to masterships in schools of art. A large increase of the number of parochial school children, taught in connection with the central school, has taken place. The number of students attending the Female School of Art has fallen from 144 to 126, and the fees from 25*l.* to 24*l.*

Considerable additions have been made by purchase to the Museum of Ornamental Art, regulated by a desire to complete specific collections. The number of visitors during the year was 111,768, against 78,427 in the preceding year, though the museum was open twenty-one days less in the past year. A peripatetic selection from this museum has been exhibited in Sheffield, York, Newcastle-on-Tyne, Caernarvon, and Hanley. The collective number of visitors was 32,852, of whom 27,436 paid for admission. The Art Library of the Department was closed three months for removal to Brompton: during the remainder of the year, the number of visitors was 5,346. Arrangements have been made to circulate important works of art among the local schools of art.

The Museum of Irish Industry has received considerable addition during the year, and has been visited during the day by 15,329 persons, and in the evening, when lectures are delivered, by 16,282; showing a total increase of 6,603 upon the previous year. The number of persons who submit to the examinations upon the subjects of the lectures delivered in the School of Science, connected with the Museum, has also increased.

The varied objects of the Royal Dublin Society have been prosecuted with vigour, and a marked improvement has occurred in the returns for the present year in most of its departments; the exceptions being the School of Art, and the lectures on chemistry, physics, and natural history.

The gardens of the Royal Zoological Society of Ireland have been considerably improved. 124,976 persons visited them during the year.

The experiment of instituting examinations in connection with the provincial lectures in Ireland has been more successful than could have been expected. The character of the answers received has naturally been unequal in the different towns, but, as a whole, have elicited the admiration of the Examiners, generally professors of Trinity or the Queen's Colleges.

The Normal Lace School, established in Dublin, although successful as a school of general instruction, has proved a failure as regards its especiality. The Department recommends the gradual withdrawal of the Parliamentary grant of 500*l.* voted hitherto for its support.

The interest manifested in the National Museum of Scotland has produced such large accessions to the collections that it now becomes necessary to carry out the intentions of Parliament in providing a suitable building to contain them, and preparations are in progress to that effect.

There has been an increase of three in the number of local schools of art during the past year, and the instruction has been made more efficient by the introduction of a constant system of inspection. The total number of pupils under instruction is 35,083; of whom 12,337 attend the schools of art, and 22,746 are taught in public and national schools.

Facilities have been given to teachers and pupil teachers of public schools, to qualify themselves to teach drawing: 1,231 teachers and pupil teachers, have availed themselves of these facilities during the year.

DAMP AND SALT IN WALLS.

IN the last number but one of your journal (p. 368), I observe an allusion is made to my newly patented process, in reply to inquiries made by your correspondents for remedies against salt in walls, &c.

The application suggested by you will unquestionably preserve the stones and walls of a building, and render them "water-proof;" but in instances where salt is continually exuding, as is frequently the case in stuccoed walls, I should advise a preliminary operation.

The efflorescing salt is doubtless Glauber's salt (sulphate of soda), probably formed in the following manner: the sulphur in the bricks or cement, combining with the oxygen of the atmosphere, forms sulphuric acid, which in turn acts upon the soda compounds with which the materials are impregnated, thus forming the efflorescing *sulphate of soda*.

The process I should adopt would be first to get rid of all efflorescing salt which may be present, by washing the wall with a solution of chloride of calcium (or muriate of lime), which will convert the sulphate of soda into sulphate of lime (an almost insoluble substance, which will remain in the wall), and into chloride of sodium, or common salt, which latter should be removed from the surface by subsequent washing.

In order to prevent further production of efflorescence, or susceptibility to absorb moisture, I should then adopt the course alluded to by you.

The mode of operation is simply this:—The stone, or other material, of which a building may be composed, should be first cleaned by the removal of any extraneous matter on the surface, and then brushed over with a solution of silicate of soda or potash (the specific gravity of which may be varied to suit the nature of the stone or other material): this should be followed by a solution of chloride of calcium, applied also with a brush: the lime immediately combines with the silica, forming silicate of lime in the pores of the stone; whilst the chlorine combines with the soda, forming chloride of sodium, or common salt, which is removed at once by an excess of water.

I shall feel obliged if you will insert these remarks in your next number; and I would desire to inform your readers that both the processes above alluded to have been patented by me, and are fully described in my specification of the 24th of March, 1857, which is printed by the Commissioners of Patents.

FREDK. RANSOME.

SCENERY AND THE STAGE.

The Princess's Theatre.—Mr. Charles Kean has revived "The Tempest" in a very remarkable manner. It does not commend itself to quite such special attention on our parts as did those previous revivals by Mr. Kean which brought faithfully before the public the architecture and social life of past periods,—pre-Norman art in "Macbeth," England under the Tudors, in "Henry VIII." Greek life and buildings, in the "Winter's Tale," or the architecture and decorations of the end of the fourteenth century, in "Richard II.;" but it displays an amount of mechanical contrivances, novel arrangement, and picturesque landscape painting which has scarcely before been witnessed. The ship in a storm, with which the piece commences, is capitally contrived—the stormy sky equally well painted. In the first view of the island, overlooking the sea, a new effect is gained by the tide receding and leaving the "yellow sands." In the opening of the third act a barren and leafless scene is gradually transformed, with great elaboration, to one of luxuriant vegetation; and here the "strange shapes," with many picturesque groupings, form of themselves a flower-clothed table, supporting a banquet. The "masque" raised by *Prospero* admits of the introduction of that suspending machinery of which such good use was made for *Queen Katherine's* dream, and we have Iris and Venus, and Ceres and Jupiter floating in the air. For the appearance of *Ariel* the devices are as numerous as the entrances. Now, the tricksy *Sprite* is borne along, without apparent means, midway between the stage and the roof: then, he shoots upwards as a star: here he is seen in the heart of a rock, made visible for the instant; there floating on a bat; he is here, there, and everywhere, during the progress of the play, and is ultimately left suspended in the air, sole tenant of the scene, when the ship bearing his late master has sailed away, and the island has disappeared. Mr. Kean invests the character of *Prospero* with great dignity and pathos. Miss Kate Terry is a pleasant and ready *Ariel*; and Miss Carlotta Leclercq a graceful *Miranda*. Mr. Harley's *Trinculo* has been known for a century; and Mr. Cathcart, in the comparatively small part of *Antonio*, has made an advance in his profession. Quite right is Warburton when he points to "The Tempest" as one of the greatest efforts of that amazing imagination, peculiar to Shakspeare, "which soars above the bounds of nature without forsaking sense; or, more properly, *carries Nature along with him beyond her established limits.*"

The Lyceum.—The translation of "Macbeth" into Italian, looked forward to with much interest by many playgoers, has afforded Madame Ristori another opportunity to show her great powers as an actress, while it has enabled her admirers to test them by comparison. Without terming *Lady Macbeth* one of her greatest parts (it does not afford the same opportunities for those violent bursts of passion, as in the *Medea* and *Rosmunda*, in which Ristori excels), it is a noble assumption, not easily to be forgotten by those who witness it. The sleep-walking scene is the great feature of her version, and displays acting which, for intensity and grace, could scarcely be surpassed.

NETLEY HOSPITAL AND ALDERSHOT.

WHEN everybody is searching for information respecting the site, arrangement, construction, and ventilation of this unfortunate Netley Hospital, it behoves those who are at the head of these matters, not only to look in every quarter for remedies, but to see that similar errors (if proved to be such), are not committed in the erection of other hospitals.

A military hospital, for a large number of patients, has recently been designed by a professional man, for the Camp at Aldershott, and as it is on such a decidedly different plan from the one at Netley, I think it only fair that its general features should receive some consideration. The plan is somewhat after this fashion:—the main front contains all the offices for the executive, together with the church, and certain quarters for sick officers, by which arrangement they are kept conveniently distinct, but still with *ample* means of communication with all the other parts of the building, by an open corridor, from which the *blocks* for the patients branch out, and are *isolated*, with *windows on each side*, thus insuring a most thorough ventilation. At the end of each of these blocks is a tower connected with the wards, by a short narrow passage, which has also windows on each side. This tower contains the baths, water-closets, sculleries, &c. The ward blocks are three stories in height, but communicate with each other, by *external staircases*, which prevents the circulation of impure air from one floor to another.

The general plan of this hospital has been approved by the Army Medical Board, as well as by many not officially connected with the Government. If these things are found to be *correct*, it is probably not too late to see if they cannot be advantageously introduced into other hospitals: if *wrong*, the sooner they are rejected the better: at any rate they are worthy of consideration. JUSTE JUDICATO.

*** The design in question is evidently founded on the plan, suggestions, and reasonings given in our pages. The principle adopted is unquestionably the right one.

THE METROPOLIS.

London and North-Western Railway.—An extensive structure is now in course of erection in front of the Euston Station of the London and North-Western Railway, for the purpose of protecting passengers and vehicles from the weather. The columns and roof are of iron, and the contractors are Messrs. Lawrence, of the City Ironworks. It is to be roofed in with glass. The company have taken tenders for their new general goods station.

The Sewers in the Neighbourhood of the Houses of Parliament. — A report upon this subject has just been presented to Sir Benjamin Hall, First Commissioner of Works, on the state of the sewers in the neighbourhood of the Houses of Parliament, by Mr. G. Gurney. The report states that the effluvium escaping from the open mouths of these sewers taints the atmosphere in and about the Houses of Lords and Commons, and that it is within the daily experience of the members of both Houses, and there cannot be the least doubt that the effect upon the health of all subject to its influence is injurious. Mr. Gurney recommends that the mouths of all sewers about the Houses of Parliament should be "trapped," and states that the sewers that affect the impurity of the atmosphere are at the pier contiguous to Lambeth Palace, where there are two; two also at Millbank, one at the Penitentiary, two at Vauxhall-bridge, and one on either side of the river. Of these the most offensive to the Houses of Parliament are the sewers at Lambeth and Millbank. The others affect the atmosphere only in south-westerly winds and on the fall of the barometer, and do not require such immediate attention; but it is desirable that the Lambeth and Millbank sewers should be trapped as soon as possible. There are nuisances affecting the atmosphere of the Houses of Parliament on the other side of the river from offensive manufactories: the worst are the bone manufactories, from which the effluvium constantly finds its way. The exhalations from the river itself are also a source of impurity to the atmosphere. The report, together with the consideration of the entire subject, has been referred by Sir Benjamin Hall to the Metropolitan Board of Works.

CATTLE AND DRAUGHTS.

SINCE you have opened the *Builder* to the cause of maltreated cattle, as regards their homes, may I express a hope that another cruel abuse, incurred in the present draughty mode of their travelling, may receive your regard, as it seems even probable, from the fact of the lung disease having prevailed so much during the last fifteen or sixteen years, that most of their suffering arises from that source. My attention was drawn to it by a dealer in cows remarking, of this wide-spread distemper, that he never knew it till railways came up, and that he now makes cattle walk instead of exposing them to the danger. Surely it seems a natural result from exposing the poor creatures to the cutting cold draught of such velocity through the open railing of the cattle-trucks. With such a view, I heartily wish that the directors of railways had it laid on them, by conscience or legislature, to protect with a worthy providence the health and lives of the life-sustaining victims of slaughter and fountains of milk, in comfortable boxes, and so do *their part* for the short-lived enjoyment of the creatures whose sufferings will retribute their unfortunate eaters with a long life of ailments in their own shortened lives; and that they would also view with me the horrid picture reflected from this, where the direct sufferers are their *fellow* creatures, whom they catch by cheap fares in *painted and varnished cattle-trucks* that run on pleasure excursions, when the sensitive town-folks' chests are swept under consumption's invisible steam-speeded scythe.

But the people themselves need be wiser, and take another lesson from a physician who took a house by the sea-side where he found the sashes made to open at the bottom only, and immediately had them altered so as to open at the top, observing that it was one of the most dangerous positions to sit in a room at any time of the year with the bottom sash open, as the draught came directly across the chest. How prevalent is it now, where the popular nuisance flushes out with its sooty millions into the room where one is intently occupied in stillness, to throw up the *bottom sash*, and resume the seat? if this is a danger, as the physician said, surely it should be boldly averted. The top sash might be opened, but perhaps it is a stretch to reach it, and so the first at hand is chosen. Here arises the question, whether the casement opening from top to bottom is not preferable to the sharp rush through the few inches of the sash-opening—the common restriction.

If we can get *this* question of construction *settled* on sanitary grounds, we may hope to find demanded for it an observance by the nineteenth-century architects, along with the improvement in construction of cattle-trucks and parliamentary carriages by railway directors, as ordinances for the good health of man and beast. OLIVER.

FAILURE OF A BRIDGE ACROSS THE SEVERN.

BY the failure of a temporary bridge formed across the Severn, at Shrewsbury, ten unfortunate persons have lost their lives. At the inquest, held on Monday last, Mr. W. Harley Bayley, mayor of the borough, gave evidence to the effect that in consequence of the complaints made of the injury to the quarry from Jullien's *fête* of last year, he gave permission to Mr. Hay to use the Island of Poplars for the late *fête*, on the condition that Mr. Hay employed a competent person to construct a bridge of boats by which to approach the island. Mr. Hay mentioned the name of Mr. Randal, architect, and stated that he intended to have two bridges, one for the approach to and another for persons leaving the island. Witness approved Mr. Randall as the architect for the bridges. It was afterwards found that one bridge only was erected.

Mr. John Evans, Sen. carpenter, said, he was employed by Mr. Hays to superintend the construction of the bridge, under Mr. Randal. He did not know who furnished the workmen.

Mr. Tisdale, borough surveyor, said, he examined the bridge of boats on Saturday by order of the coroner, Mr. Henry Keate. In his opinion it was not sufficiently strong for the purpose for which it was erected.

Mr. Pountney Smith, architect, and Mr. Townsend, engineer, corroborated Mr. Tisdale's evidence as to the unfitness of the bridge for the purpose.

Police-constable Broughall, and other witnesses, deposed to persons rocking the bridge, two of whom were a short time in custody, but escaped at the time of the accident, and had not since been identified.

A verdict of "Accidental death" was returned in each case.

The jury condemned the construction of the bridge as unsafe, and, at the same time, expressed regret that sufficient police precautions had not been observed, and that the safety of the bridge had not been previously tested by the borough surveyor.

OIL-PAINTED PHOTOGRAPHS.

Mr. E. T. Parris.

We have recently seen some photographs, by Mr. Herbert Watkins, painted on *in oil* by Mr. E. T. Parris, the artist, so as to have all the effect of the most finished miniatures. In doing this, Mr. Parris claims nothing more than thus making a good photograph, when obtained, permanent; but he is able to do much more, for his medium enables him to remove those overstrong markings, and to lessen those occasional exaggerations which photography, at its best, produces, and thus to make portraits pleasing as well as truthful. He is able further to put into them something of the *general* character of the individuals represented, in addition to their actual appearance at a special moment, under, what must always be the case in a photographer's glass room, peculiar and exceptional circumstances. Mr. Parris is so strongly associated in one's mind with a certain wonderful view of London on acres of canvass, and with the recent excellent restoration of the huge paintings in the dome of St. Paul's, where for months, not to say years, he must have dealt with the "pound brush" rather than the pencil, that it is surprising to find him retaining such a delicacy of handling as is exhibited in these portraits and some other recent small works.

Considering the great ingenuity of the scaffolding by means of which he painted in the dome of St. Paul's, the laborious nature of the work, the actual risk of life, and the ultimate successful achievement of the restoration, the completion of this work, let us say, by the way, should have brought this artist a more public demonstration of approval than has yet been made. He may safely comfort himself, however, with the certainty that when he is dead and gone, some half-century hence, the vergers and the guide-books will tell wonderful stories about him, and people will say, he really was an extraordinary fellow, and will wish they had known him and could have given him some evidence of their admiration for his pluck as well as skill.

NOVELTY IN ART.

The artist is always making novelties. The faculty which marks him is invention: the exercise of it produces his works: the lack of it makes him unworthy of his name: the disuse of it is unwise.

A mere combination is not a novelty: it is so when imbued with the spirit of originality. A combination is not evil, but mean and ordinary. A copyism is offensive: it is a work only fit for machinery or ignorance. It shows admiration of the original, and a desire to perpetuate it; or blind adherence to formality and precedence; or simple lack of ability. A copy would not be commendable, even if it could have the energy of the original. That energy can only be strained for: at any time the whole must show a defect of controlling power.

The grandeur of an old building is incommunicable: it has associations with it: it has the cold and heat of many years—the mellowed tints and diversified surfaces: it is old. No modern building or painting can be old at once. No new thing can have the associations of age,—the years, the scenes, the experiences, of the time-honoured. Yet feeling is never old: it is always young and fresh: after centuries it is as full of life as when it first issued from the heart of the originator. It required no lapse of ages, nor long interval, to give the impress of majesty and of intense livingness to the works of many olden artists. This is the incommunicable part of the work—the source of its character—its great peculiarity and distinction.

No one makes a copy with the ardour with which he made the thing to be copied. It is impossible to do so: it becomes a work of compulsion—unpleasant and tasteless. Copyism is thus subversive of art.

A combination of copied parts is equally evil: the time for imitation should precede that for execution: learning should be obtained—then given out with freshness.

A tasteful joining together of beautiful atoms must make a beautiful whole: yet it is impossible to take beauties out of old works as features to be combined in a new one.

The simplicity of what is without character is painful and injurious: every production should have a character—individual and distinct from all else—its own. This is the source of its right to be considered a work of art. If there be men with us with the spirit of the workers of the past, who can shape the stone, can carve the wood, can produce forms with all the variety and originality of their predecessors, they must work. Art wants them: beauty may be made by them: let them leave behind them marks of the full and proper use of their faculty, scattered much and well.

Composition, or combining of features, is allowable, if it be done to manifest a new life—a fresh power. Copyism is the degrading work: it is the work of lines and letters,—the work of the drudge. It is not so when imbued with mark of its own.

The originality of compulsion is now rare. Most men want not to be original: they had rather be other than that. Very few give vent to all their power: the most important ventures, that should have all their attention—all their spirit,—are without the first requisite of success—earnestness. Vigour is the soul of impressibleness: that which is without it is never fully useful to any.

Love of art is in the nature of man: the artist gives expression to the aspirings of the crowd. He is the burning mountain where the fire that burns universally is discharged in mass; the vent of the ardent enthusiasm of thousands of other souls. He is the one who has to create for the many: he is part of the nature of things: he is necessary: he is provided.

An artist is possessed of poets' feelings: he is born with it: you can never make him. When he is possessed he must be used and cared for like a rare and choice tree. His mind is the root: from it trunk, branches, leaves and fruit shall spring up. He must be trained upward that he may shoot heavenwards; and must grow that he may catch the breezes purer than at earth's level,—that he may receive the moisture at once in a stream from above. He must be carefully cultured, watched with interest, provided with all aids. Nothing must rise round him to make his chances less, to narrow his standing-place, to hem in his freedom. Soon will be seen thoughts, bold and anxious, filled with spirit, struggling forth to view. They will increase in size and in number. After other seasons there will be the bud, the blossom, the fruit. The fruit to gladden; the concentration of the properties of the producer; though like, yet various; always differing somewhat, yet always recognisable as formed from one stock, having one origin.

Imagination is the spring of originality: originality is the making of an artist. An artist is the manifester of beauty.

Imagination is reproductive—in its fulness and freeness infinitely so: it is never exhausted, for it can never tax itself. Every light and play opens the way to more. The storehouse of the mind is never open wide: the door stands only ajar: it may be looked into, and will supply the searcher. The seeker after novelty is imagination. The mind gives out an idea, but it receives seven into itself—variations of the one that is used. It never is emptied without large addition in return. It is filled for all circumstances: the imagination will be a servant as much as you wish: the will must only allow it.

Novelty is a mark of advance: it is entirely at variance with frivolity and mock freshness. It is a step, or many steps, from past attainment towards the goal: it is not a grasshopper's leap to the right or the left, and then back again. The effect of advance is advance: novelty is a grafting of new things on old: advance is necessary: advance necessitates novelty. Similarity is not contrary to novelty. Likeness is the root of all progress: likeness, with difference, is the fruit. There is no limit to the strides that may be taken: they may be large—as large as possible. The sooner the new domain is entered the more reason will there be for decided hope of success. Long time art is at quiet, resting, sleeping: when she wakes up, and begins to march onward again, with all the aids that are afforded to her, she may hope to get on.

She wanted a manner of pause for centuries—a resting-place and a long sleep. She had done her work till then: another work must be done—an important one. Meanwhile she would rest on her oars, and draw to the shore, and let the tide pass on. She ceased to give her generals—the artists—to men. The battle was fought: the giant evils that had long been raising themselves to put in fetters the individual energy of man—to make him a lifeless and powerless tool—were cast down to the dust. The wand that had acted in enchantment so long was robbed of its might: the work of a century, the work for the world and for ever, was worked. Once again, with the power of acting unrestrained, each one could do what he would. The mist cleared off: every one looked at his fellow in a clearer light: each lived in a higher region—freer, nobler. Now is the time to go in the course that has been left for centuries, to work on from what is past to something better in the future.

The great men of old call to work. The sympathy of every heart of them is with it. The end may be neared soon. Why, in this young world, are younger men than those of to-day to be in the foreground? It must not be so. The times are older: the artists who will come will be of the age. These times are of mighty import: this age labours with huge discoveries: it is an age of progress—of energy. Every day, from the mass of restless force that is straining for expression, comes some new thing. The way is to be pursued. Truth in everything is the high achievement. All is forward—art should be in the van. The artist is to lead many onward. He can only advance by his originality.

S. F. C.

Books Received.

Rain and Rivers; or, Hutton and Playfair against Lyell and all Comers. By Colonel George Greenwood. London: Longman and Co. 1857.

Colonel Greenwood is not far wrong, we opine, when he says that the subject of his speculations in the present volume "is of vital importance—the very foundation-stone—in theories of geology and physical geography; also in engineering questions touching harbours and docks, the embanking of alluvial rivers, the reclaiming of land from the sea or marshes—works which place in jeopardy millions of lives,—and the drainage, sewage, and supply of water to 'the cities of the plain.' And last, and oh! ye goldfinders and utilitarians, not least,—

> The boundless store
> Of charms which nature to her votary yields,—

the subject explains even the origin of these. The alternation of the ravine and ridge, the hill and dale, the exquisite beauty of the earth's surface, of all that we *see* of the earth,—the 'dread magnificence' of the alpine chasm, and the rich loveliness of the alluvial vale, are the ever-changing products resulting—start not at the bathos—from the daily wash of rain."

The dashing boldness and outspoken expression of opinion in which the gallant colonel indulges are refreshing as his own favourite "rain" is to the "new-mown grass," even though he does treat Lyell as a scientific thimblerigger, and Humboldt as a pompous humbug. That the colonel has even the best of it, too, in maintaining that the idea of Lyell that valleys are produced by the action of the sea is a gross error, seems evident; but then Lyell does not restrict himself to this idea, and is ready, as his antagonist virtually alleges, to place the pea under another thimble the moment the finger of scorn is pointed at his ocean theory. That even Colonel Greenwood's own theory, however, is not a complete one, seems equally clear; for in innumerable instances the scooping-out of valleys, and the grinding down of rocks into soils, by those tremendous ploughs and harrows of nature the glaciers, is no less manifest than their excavation by mere rain and rivers. The question, how glaciers came to exist where they plainly have at one time existed, itself of course admits of discussion; but the fact seems to be incontestable. Even yet, too, the action of frost and of frozen moisture in rocks, in disintegrating and pulverising them, is not shown out, on the author's own view, as it ought to be. With reference to the glacier theory, the arctic regions, as they now exist, are capable, we think, of shedding much light on the twofold state of freeze and flow, under which the rich soils of our own country have at one time been prepared for man's use; and it cannot be denied that co-ordinately with the former alternate prevalence of vast winter snows and glaciers, and of no less awful summer rains and floods, over all the high grounds especially, in Britain, the sun in the ecliptic at one time librated in a wider range of tropic, so that the winters in temperate regions must have then been more severe, and the summers more intense than they now are. True, astronomers tell us that the extent of this variation in the ecliptical obliquity of our planet must have been very limited; but the widely different ratios of ecliptical obliquity co-existent as they *are* in the *different* planets, from a state of almost entire coincidence of ecliptic and equator, as in Jupiter, to a state of libration almost "wide as the poles asunder," as in certain other planets, tends strongly to militate against our implicit and passive belief in this *dictum* of astronomers, so far as regards our own planet's astronomical and physical history, all the more especially when we consider the mani-

festations of its *geological* history still traceable on the face of its now temperate regions. This, however, is not the place to enlarge on such arguments as these.

There is a remark by Colonel Greenwood, in the present volume, on the Ordnance survey, which we feel it a duty to quote, whatever amount of real reason or of undue prejudice may have actuated the author in making it:—

"I may here remark, of our own Ordnance map, that if the delineation of the streams throughout England is as faulty as it is in the small part of Hampshire which I happen to know as a sportsman, that map does not deserve the reputation which it has."

Gleanings among the Castles and Convents of Norfolk. By HENRY HARROD, F.S.A. Norwich: Published by Subscription. 1857.

MR. HERROD is the local secretary, for Norfolk, of the Society of Antiquaries and of the Archæological Institute. He was also till lately the honorary secretary to the Norfolk and Norwich Archæological Society. The volume before us, therefore, may well be regarded as one written by a competent author. It is pretty fully illustrated by engravings, some of them rough enough certainly, but others of a better description. The volume contains full accounts of Thetford Priory, Rising Castle, the convent of Black Friars at Norwich, Castle Acre Priory, Norwich Castle, Walsingham Priory, Binham Priory, Buckenhaw Priory and Castle, Bromholm Priory, and Norwich Cathedral Priory; and to the whole is added a useful index.

Report on the Establishment and present Condition of the Public Baths and Washhouses in Liverpool. By JAMES NEWLANDS, C.E. Borough Engineer.

THIS report may be said to be a strictly professional one, accompanied as it is by numerous plans, sections, and elevations, with details as to costs and arrangements. One of the chief conclusions to which the reporter arrives, as to the working of the several establishments at Liverpool, is, that washhouses are a mistake,—that, at all events, they are not used by the class whom they were designed to aid and benefit, but by tradespeople, hotel and boarding-house keepers, professional washerwomen, &c. and that they tend to supply that in charity which it is the duty of the house-owner to provide as a right. As to the baths themselves, it appears that there are too many of the better class of baths now provided at Liverpool, and that the price charged for the lowest is too low. Hitherto the baths have not been paying their own expenses; but the reporter expresses his belief that these establishments will eventually be self-supporting; and besides, the habit of bathing is a process of education which is every day being more and more developed. The statistics of the next few years, the reporter is persuaded, will show a result widely different from that now obtained, and more satisfactory to those who desire to see the condition of the poor improved in regard to cleanliness as a means of health.

Brief Account of the Provisional Arrangement and proposed Development of the Society of Arts' Collection of Illustrations of Every-day Life for the Working Classes. 1857. Part first.

THE illustrations of every-day life for the working classes, originated by Mr. Twining, now form one of the most interesting departments of the Educational Collection at the Brompton or South Kensington Museum, and must ultimately constitute a treasury of materials and manufactures, instructive not only to the working classes, but to those who earn their livelihood by supplying the wants of these classes. When a baker, for example, here sees, as he will do, in looking over the collection, the beautiful biscuits prepared in other countries from Indian corn-flour mixed with wheat-flour, he will be induced himself to prepare such cheap and wholesome food for the working classes of his own country; and these will be stimulated, on the other hand, to ask for them at the bakers' shops, and so to create a demand that will lead to the desired supply, and also to the introduction of Indian flour, in other forms of food. Even the political and social bearings of such a collection, on the state of the working classes, are not to be despised. What so apt to make the workman contented with his lot, as to see here, for example, which he will do, the notable contrast between the black dirty and horrid-looking stuff called bread, and eaten by his class in Sweden, Denmark, and Russia, on the one hand, and the good wheaten bread, with whose wholesome and enticing aspect he is himself so well acquainted, on the other?

In the "Brief Account" under notice is the following statement as to oatmeal, which is rightly regarded as one of the most nutritious and valuable articles of food:—

"It is sometimes stated to produce skin disease when used in large quantities, but the statement has not the slightest foundation."

Now whilst it would be a pity to disparage unjustly so excellent and cheap an article of food for the working classes, it is most desirable that any mal-influence it may possess should not be concealed or overlooked It *is* at least a fact, known to the writer of this notice, that Scotchmen themselves, who have partaken of oatmeal in the form of cakes, porridge, haggis, &c. in Scotland, not only with impunity, but with unquestionable benefit, have found it to be rather heating to the blood in England, and productive of a slight outbreak on the skin, not from any undue quantity taken, but even sometimes from the least possible quantity. Similar effects have even been known to follow in this country from partaking of Indian corn cakes. Facts such as these ought to be known and recognised, especially amongst organic chemists, who may very easily, perhaps, remedy the partial evil by the recommendation of some qualifying agency or ingredient. It is very probable, for instance, that a little barley-meal mixed with oat-meal or with Indian corn flour, may completely obviate the tendency alluded to. It is even probable that a very brief persistence in the use of such foods may be all that is requisite. Valuable and cheap food, such as Indian corn flour and oatmeal, ought not to be allowed to be prejudiced and obstructed in their extension by any mere partial evil such as this if a remedy can be at all supplied.

Mr. Twining merits the thanks of the community for his exertions in the good cause of illustrating and improving the every-day life of the working classes.

Miscellanea.

ELECTRO-TELEGRAPHIC PROGRESS.—The Atlantic cable has now been completed. The total length is 2,500 miles, and it has been manufactured in two portions. The weight of the cable is 19 to 20 cwt. per mile. There have been used in its construction 27,500 miles of copper wire, 370 to 400 tons of gutta percha, and 135,000 miles of iron wire.——A curious economization of the cost of working telegraphs by help of what may be called human electricity or electro magnetism is talked of as a highly important discovery made by Mr. Reid, of Gresham-house, City, by which the cost of telegraphic communication with distant stations will be diminished to an extent almost beyond belief. While the monster battery for sending messages between England and America consists of forty pairs of platinised silver and zinc plates, and has cost about 2,500*l.*; it is said that, from a series of experiments made by Mr. Reid, with his "mouth battery," by a *single pair* of plates the same amount of work may be performed, the cost of the battery being 3d. Mr. Reid's assistant "placed a plate of platina and one of zinc in his mouth, each being three-sixteenths of an inch square, and upon the current produced thereby being allowed to pass through 1,250 miles of the Atlantic cable, the galvanometer was deflected 8 degrees; and although the experiment was made many times, the same result was invariably obtained." If this be not a canard, or a "delusion" of "animal magnetism," it shows that there are really magical powers in the human organism, of the results of which we have as yet no conception. May not the exercise of a somewhat analagous power, for instance, in long past ages, have assisted the Cyclopean builders in modifying temporarily the pressure of the gravitating force in huge masses, thus enabling them to *handle* such masses with something like ease, so as to account for the tremendous labours of which we still have evidence in the Cyclopean works of past ages? We must look to Professor Faraday and diamagnetism, perhaps, for a solution of such mysteries. Meantime, it would seem that if electro-magnetism, or magneto-electricity, is to be made a practicable and *economical* working power, it will be by Mr. Reid's "mouth battery,"—rather an odd mode of applying such power,—to steamers, for instance, or to locomotives! How could any substitute be obtained for such a battery?

IMPROVEMENTS AT HOLYROOD.—The works at Holyrood and in the Queen's-park, authorised by a vote of Parliament last week, have been commenced. They consist of a new garden surrounding the palace, including of course the removal of all the old houses between it and the hill, forming a lock below St. Anthony's Chapel, building new entrance lodges, and extensive improvements within the palace.

NEW TOWN-HALL FOR BERLIN.—It has been determined to build a new Town-hall in Berlin, on a magnificent scale. The building is to be a monument of the best architecture of the day, and artists of all nations are to prepare plans, and enter into competition for the work. There are to be three prizes awarded for plans, of three hundred, two hundred, and one hundred and fifty ducats.

THE EDINBURGH SCHOOL OF ART.—The prizes for competition drawings, paintings, and models of the students attending this school, were delivered at the National Gallery in Edinburgh, on the 29th ult. In the ornamental and architectural department, Mr. Christie reported that the number of students who attended the classes in this department last year was 411: the number this year is 225; showing a decrease of 186. But as there were no day-classes last year, the number attending these must be deducted as follows, viz.:—Male class, 11; female ditto, 50—total, 61; making the actual decrease 247. This decrease appears to be entirely owing to the adoption of the system of charging fees, but is not more than was anticipated. Twelve students have been transferred during the session from this department to the Antique, being three more than the amount of last year. The class of Practical Architecture has increased from eleven to sixteen, while the class of Composition has maintained its numbers, so that the falling off has not taken place in the advanced classes. The result of the trial of the Geometry shows the necessity of extending the education of the students in this direction. In the Antique Life and Colour Department, Mr. R. S. Lauder reports that, in consequence of the system of students paying fees being adopted, the classes have fallen from ninety-one of last year to forty-three for this.

RAILWAY MATTERS.—The traffic returns of the railways in the United Kingdom for the week ending June 27, amounted to 500,930*l.* and for the corresponding week of 1856 to 464,910*l.* showing an increase of 36,020*l.* The gross receipts at the eight railways having their termini in the metropolis amounted to 210,783*l.*; and last year to 200,591*l.* showing an increase of 10,191*l.* The increase on the Eastern Counties amounted to 1,723*l.*; on the Great Northern to 547*l.*; on the Great Western to 3,693*l.*; on the London and North-Western to 5,764*l.*; and the South-Eastern to 840*l.*: total, 12,567*l.* But from this must be deducted 77*l.* decrease on the London and Blackwall; 879*l.* on the London, Brighton, and South Coast; and 1,420*l.* on the London and South-Western. The receipts on the other lines in the United Kingdom amounted to 290,147*l.* and last year to 264,318*l.*; showing an increase of 25,829*l.*——Meetings, of a private character have been held during the past few weeks, with a view of launching a scheme for affording to Cheltenham a shorter route to the metropolis. The line proposed will join the Oxford, Worcester, and Wolverhampton, at Chipping-Norton, thus reducing the distance between Cheltenham and London to within 100 miles, and shortening the duration of the journey (without change of carriage) nearly two hours. The line is estimated to cost about 350,000*l.* ——It is said the Crystal Palace Railway Company have agreed to purchase the Grosvenor Canal, with a view to forming a railway along its banks and using its Grosvenor basin, within half a mile of Buckingham Palace, as a grand West-end terminal railway station.

CITY WORKING-CLASS DWELLINGS.—In a tract under the title of "City Dwellings for the Working Classes," Mr. G. Ross, M.R.C.S. and a member of the Court of Common Council of the City of London, reurges the heads of addresses and notes of evidence delivered by him before the Common Council and their committee for improvements. Mr. Ross objects, to the formation of suburban dwellings for the industrial classes employed in the city, that even at a farthing per mile by railway, the passage to and fro, weekly, would average, at least, two shillings a head, an addition to rent far beyond the means of the class to be benefited. He therefore proposes that the City Corporation shall take part in the formation of improved City dwellings, for which he endeavours to show that there is abundance of room; the buildings to be five stories in height, and laid out with wings divided into wards, and with other arrangements and restrictions.

DUBLIN SCHOOL OF ART.—LECTURE ON PAINTING.—Mr. Macmanus, head master of the School of Art in Kildare-street, Dublin, last week delivered a lecture on painting in the theatre of the Royal Dublin Society House, being the first of a series of three lectures, comprising painting, sculpture as connected with painting, and architecture as connected with sculpture. The address opened with some preliminary remarks in reference to a report having gained currency that the School of Art had formed a life school in opposition to that existing in the academy in Abbey-street. There was no foundation for the rumour. Mr. Macmanus divided the fine arts into seven, viz.—the phonetic four,—music, eloquence, literature, and acting; and three others, painting, sculpture, and architecture. In course of his remarks the lecturer maintained that there had never been art in Ireland. The time was not come for it: it was not required at present. The seed had been sown, and the future would reveal in this, as in other things, what Ireland was capable of.

THE ART MANUFACTURE ASSOCIATION AT EDINBURGH.—The first annual meeting of this Association for the distribution of prizes, was held on the 27th ult. in Queen-street Hall. Sir J. M'Neill was called to the chair, and opened the proceedings by referring to the doubts and misgivings with which the most sanguine engaged in the origination of the Association. Sir John added that one most pleasing feature of the recent display of the works of art was the extent to which the working classes had availed themselves of the evening exhibitions. He had not the smallest doubt that perseverance in this course would tend to produce an important elevation in the taste, and also in the character, of our working classes. The report was then read. It stated that the receipts on account of subscriptions during this first year amount to 5,489*l.* 18s. 2d. the number of subscribers being 5,333. The committee had expended upwards of 3,000*l.* in the purchase of objects of art workmanship for distribution among the subscribers. The articles selected were, — 1. Gold and silver work—jewellery; 2. works in electro-plate; 3. works in crystal and metal; 4. crystal and glass — white, engraved, cut, and coloured; 5. pottery — including China, Parian, &c.; 6. carved work in wood, horn, and marble; 7. textile fabrics, as shown in shawls. The specimens were selected from the productions of manufacturers in Paris, Vienna, Frankfort, London, Birmingham, the Potteries, Glasgow, and Edinburgh. At the exhibition in the National Galleries, the number of ordinary admissions in the day-time, during the six weeks it was open, was 17,457; and in the evening, 17,806. The number of season tickets sold was 1,767. The receipts derived from the exhibition, and lectures delivered in the galleries, amounted to 1,445*l.* 19s. 9d. The report was unanimously agreed to, and the distribution of prizes was then proceeded with.

THE LUNATIC ASYLUM FOR DORSET.—At the Midsummer Sessions for the county of Dorset, Mr. Moffat's plans for the new buildings were again considered, and the committee reported that they were unanimously of opinion that Mr. Moffat should be employed as architect to carry out his plans at the usual per centage, subject to certain minor alterations suggested and agreed to by Mr. Moffat, the principal one being the formation of a separate chapel at an additional cost of 1,000*l.* The Rev. J. A. Templer, according to the report of the proceedings in the *Dorset Chronicle*, explained that at the last sessions it was agreed that Mr. Wyatt should decide which was the best of the six plans for the enlargement of the asylum, the court having offered a premium of 80*l.* for the best, and 20*l.* for the second best. Mr. Wyatt had recommended that of Mr. Moffat, which was now placed before the court, and the alterations, as referred to in the report, were explained by Mr. Templer. He stated that a great point in Mr. Moffat's plan was, that it was more concentrated than the others, and avoided excavating in the chalk adjoining the asylum, while it would not interfere so much with the present buildings. He then proposed that the plan should be accepted, and forwarded to the Commissioners in Lunacy for their approval. The motion for accepting the plan was carried by a large majority, and after a lengthened discussion on the subject of the 1,000*l.* to which the architect's per-centage on 25,000*l.* would amount, it was ultimately resolved to appoint Mr. Moffat as the architect, if the Lunacy Commissioners approved of his plans.

MASONS' STRIKE AT MANCHESTER.—The stonemasons of this city have been on strike for nearly three weeks. They demand to leave off work at twelve o'clock at noon on Saturdays, instead of at four o'clock, as heretofore, and refuse to work up any portion of the time, and still require the same wages, 30s. per week. The time lately worked was 57½ hours per week in summer, which they demand to be reduced to 54½ hours. They also demand to leave off work at twelve o'clock in winter as well as summer, and, as they cannot see to commence work much before eight o'clock in the morning, the employers will have to pay one day's wages for four hours' work. Any mason working out of town is to be at the pay-table at twelve o'clock: in such cases, Saturday's wages will be equivalent to 4s. 6d. for two or three hours' work. The operatives urge that this alteration is necessary for their social improvement, and is sanctioned by the Bishop of Manchester, Sir John Potter, Sir James Watts, Thos. Bazley, Esq. and many others who have signed their names in favour of it. On the other hand, the employers allege that although the alteration in time would be inconvenient to them, they would submit if the hours were worked up, as they cannot get prices to compensate for the loss of the time.—*Manchester Courier.*

ISLINGTON GREEN.—We regret to find that it is in contemplation to erect the Vestry Hall on this only open space in the parish. Is it too late to prevent what would certainly be an unwise act?

ACTIVITY OF THE BUILDING TRADE IN GLASGOW.—In every direction, says the *Glasgow Gazette*, the utmost activity prevails in the building trade. Some of the streets — Eglinton street and Apsley-place, for instance,—are well-nigh barricaded from end to end with wooden enclosures to facilitate the erection of new, and the re-construction of old, buildings. At the south end of Eglinton-street, there are several dwelling-houses, enriched with Grecian ornaments from designs by Messrs. A. and G. Thomson. In the Trongate, West St. Vincent-street, Maxwell-street, Howard-street, the vicinity of the Paisley-road, Hutchesontown, Anderston, in short, in every direction extensive building operations are being carried on. Our contemporary the *Guardian* further tells us of buildings in prospect. Besides the U.P. Church to be erected for Mr. Ker between Sydney-street and Hill-street, with an entrance frontage to Duke-street, there are other three churches on the eve of erection. One of these is a U.P. church, in the New City-road: another is a territorial mission church, to be erected in Govan-street, Gorbals; and the third is a church of the same class, to be erected at Blackquarry.

REPORT ON EXPERIMENTAL PAVEMENTS IN THE CITY.—A report has been made to the City Sewers Commission, by their engineer and surveyor, Mr. Haywood, on the experimental pavements laid down in Moorgate-street, at his suggestion, in 1845. As regards quality of stone, the result is, —Firstly, that irrespective of size of stone, the Aberdeen granite generally required reparation earlier than the Mountsorrel. Secondly, that the Aberdeen stone requires a larger area of repair than the Mountsorrel: that it has had more stones worn so as to be unfit for use, and, consequently, has required the insertion of more new stone, and has cost more per square, per yard, per annum, for repairs than the Mountsorrel. As regards size of stone;—that, irrespective of the nature of the granite used, the pavings composed of the smaller stones have needed more reparation, and the insertion of a larger quantity of new stone, and have cost more for reparation than those composed of the larger stones. These results accord with the reporter's observations made upon other pavements. The only safe conclusion deduced from these results is stated to be, that the cost of repairs upon similar pavings will be inversely as the size of the stones. On the whole it is concluded, meanwhile, that the pavement usually employed is the most suitable.

VISCOUNT CARLINGFORD'S AERIAL MACHINE.—Viscount Carlingford, of Swift's-heath, Kilkenny, has patented an aërial chariot, with which he anticipates obtaining great results. The improved machine is likely, it is said, to be experimented with shortly at the Crystal Palace, Sydenham. The patentee states that "The aërial chariot in form is something of the shape of a boat, extremely light, with one wheel in front and two behind, having two wings slightly concave, *fixed* to its side, and sustained by laths of half-hallow from passing against them, and communicating their pressure through the body of the chariot from one wing to the other, and supported by cords whose force, acting on two hoops nearly of an oval shape, holds the wings firmly in their position, using a force that cannot be less than ten tons, on the principle of corded musical instruments. The aerial chariot is provided with a tail that can be raised or lowered at pleasure. The machine is drawn forward by an aërial screw of the perfect form of the screw propeller."

SOCIETY OF ANTIQUARIES, NEWCASTLE-UPON-TYNE.—The country meeting of this society, for 1857, was held on 29th ult. at Lindisfarne, or Holy Island. The inn was first visited, and then the parish church, a structure dating farther back than 1145, with round and pointed arches, and alterations and additions of various periods down to the eighteenth century. Near the church stand the remains of the ancient priory, which has been as far as possible arrested from final destruction, under the authority of the Commissioners of Woods and Forests. The castle was then visited, and there the party, about twenty in number, refreshed themselves, and then returned to the mainland, and by train to Newcastle. The *Gateshead Observer*, from which we gather these few particulars, gives a full report of the meeting, with a historical sketch of the island and its ancient bishops.

COMPETITION, BALSALL HILL, BIRMINGHAM.—The Building Committee for the erection of Parsonage-House for St. Paul's Church, Balsall Heath, Birmingham, have selected the designs of Messrs. Briggs and Everal, of Birmingham, submitted in competition.

ART AT DUNFERMLINE.—We regret to observe that a resolution has been come to, to close the School of Art at Dunfermline. The master (Mr. Baker) had previously resigned, transferring his services to the High School of Stirling, where there seems to be some taste for art, and where he appears to have obtained commendation.

ST. HELEN'S CEMETERY.—The Burial Board has accepted the tender of Mr. John Middlehurst, of St. Helen's, for the erection of the three chapels and two lodges, at the sum of 3,286*l.* 14s. 3d.; and that of Mr. Edwin Knight, of Manchester, for the earthwork, road-making, drainage, &c. at the sum of 2,286*l.* Mr. Barry, of Liverpool, is the architect.

TENDERS

For finishing six vill'as at Wandsworth. Mr. A. C. Hook, architect. Quantities supplied by Mr. Chas. Sewell:—

Vale and Osmond	£4,331	12	0
Crabbtree	4,033	6	7
Godbolt	4,021	0	0
Cowland	3,729	1	6
Walburton	3,725	0	0

For the general drainage of the district of Christchurch, Monmouth. Mr. Alfred William, engineer:—

J. Mayo, Newport	£2,736	0	0
Bewick and Wade, Carmarthen	2,690	0	0
Davies and Knapp, Newport	2,435	0	0
R. Giles, Jun. ditto	2,296	0	0
Jonah Francis, ditto	2,230	0	0
T. G. Hardie, ditto	2,228	0	0
John Phillips, London	2,211	0	0
Moore and Griffiths, Newport	2,169	0	0
James and Roberts, ditto (accepted)	1,908	0	0

For additions, &c. to Gunnersbury House, Acton. Mr. W. W. Pocock, architect. Quantities supplied by Mr. W. R. Gritten:—

T. Piper and Son	£3,984	0	0
Todd	3,949	0	0
Nye	3,836	0	0
Cowland	3,783	15	9
Chamberlen	3,760	0	0
Wm. Higgs (accepted)	3,715	0	0

For two chapels, two lodges, &c. Oldbury Cemetery; Mr. W. Wigginton, architect:—

Harley (Smethwick)	£2,930	0	0
Cox and Edwards (Titford)	2,557	14	0
Round and Bagnall (Oldbury), including 71*l.* 16s. for additional work (accepted)	2,455	4	0

For proposed new school for the trustees of Lady Hollis's School, Red Cross-street, Cripplegate Without. Mr. Edmund Woodthorpe, architect:—

Locke and Son	£1,345	0	0
Gammon	1,114	0	0
Brass and Son	1,100	0	0
Lawrence and Sons	1,083	0	0
Ashby and Son	1,078	0	0
Brown	1,073	0	0
Turner and Sons	1,033	0	0

For additions and alterations to a warehouse in Watling-street, for Messrs. White and Sons. Messrs. Tillott and Chamberlain, architects. The quantities supplied:—

Anley	£3,934	0	0
Myers	3,500	0	0
Wilson	3,382	0	0
Pritchard and Son	3,158	0	0
Brass and Son	2,994	0	0
Burton	2,710	0	0
Lawrence and Sons (accepted)	2,682	0	0

For additions and alterations to a warehouse in Watling-street, for Messrs. Lupton and Co. The same architects. The quantities supplied:—

Anley	£1,271	0	0
Myers	1,179	0	0
Wilson	1,104	0	0
Pritchard and Son	1,005	0	0
Brass and Son	989	0	0
Lawrence and Sons	842	0	0
Burton (accepted)	836	0	0

For girls' school and residence in Spicer-street, Spitalfields, for the London Domestic Mission. Mr. William Reddall, architect:—

Wilson	£1,067	0	0
Pritchard and Son	1,042	0	0
Scott	1,020	0	0
Ashby and Sons	1,019	0	0
Piper and Son	995	0	0
Burton	947	0	0

For new buildings, Staining-lane, City, for Messrs. Hugh Jones and Co. Mr. Thomas Burton, architect. Quantities furnished by Mr. Burton:—

	Building.	Additional Cost of Stone Cornices.	Total.
Axford and Co.	£4,579	£221	£4,800
Brass and Son	4,529	217	4,746
Tolley	4,297	297	4,594
Lindsey	4,330	208	4,538
Lawrence and Sons	4,162	170	4,332
Piper and Son	4,150	180	4,330
W. Smith	4,125	175	4,300
Lucas, Brothers	4,123	144	4,267
Ashby and Son	3,879	215	4,094
Myers	3,992	79	4,071
Downs	3,776	184	3,960

TO CORRESPONDENTS.

Puer (the question will be found fully discussed in our pages).—A. W. H.—W. R.—J. T. R.—W. T.—L. M.—G. C.—Rev. A. B.—G. G. S.—Mr. R.—Mr. C.—J. W.—R. K. P. (send particulars).—T. T. (corrosive sublimate and creosote have both been recommended,—but see past volumes of the *Builder* for particulars).—P. and S.—H. B. G.—H. C.—Alpha.—G. S.—E. J. S.

"*Books and Addresses.*"—We are forced to decline pointing out books or finding addresses.

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CLERK of WORKS. — WANTED, an energetic and experienced Man to superintend the erection of Foundries, Smitheries, and Lathe and Fitting Shops. The works will be extensive, and a person is required who has had practical experience in similar erections.—Apply to J. and F. HOWARD, Britannia Iron Works, Bedford.

CLERK of the WORKS.—WANTED, immediately, an experienced MAN, to carry out the Engineer's plans for the Rotherham, Masborough, and Holmes Coal Company (Limited). One who has had practice in a similar capacity, and is well acquainted with concrete foundations, ashlar work for engine beds, and tubbing out water, preferred.—Address, with terms, testimonials, and references, to the Company's Secretary, Mr. J. H. MYCOCK, Rotherham, Yorkshire.

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WANTED, by an Engineer and Ironfounder, a DRAUGHTSMAN, who is quick and accurate, and has a practical knowledge of the business. Good references required.—Apply by letter, addressed J. L. L. 45, Arlington-street, Islington, N.

WANTED, GOOD GOTHIC STONE CARVERS.—Apply to HENRY EARP'S Carving and Monumental Works, 10, Carey-street, Vincent-square, Westminster.

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WANTED, immediately, at the New Asylum for Fatherless Children, Couldon, near Croydon, several GOOD HANDS.—Apply to Mr. J. COUCH, on the works.
Dated July 8, 1857.

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